

EXCLUSIVE: Tech Report--300SLR

SPORTS CARS ILLUSTRATED

35c

APRIL 1956



Why Moss Chose Maserati • Special Section: Sports Car Fashions

SPORTS CARS ILLUSTRATED

policy statement

THIS ISSUE OF SPORTS CARS ILLUSTRATED marks the magazine's debut under new management and new editorial direction. It is the intention of the editors to make SCI the leading magazine for the motorist who **likes** to drive and who feels that his car is more than mere transportation.

SCI will be a magazine for the sports car enthusiast but not merely for the purist alone. It will be a magazine dedicated to driving for pleasure and to the understanding of the automobile as a thing of beauty and a machine to enjoy. It will contain material of interest to all who are interested in the automobile and the sports in which it may be used, either active or passive.

SCI will attempt to be, above all else, accurate and authoritative in all matters. To this end the editors have gathered a galaxy of the top automotive writers in the United States, Britain and on the European continent. It is our intent to bring you the most complete coverage possible at the earliest possible time. We will not give you rumor nor will we give you estimates; we will give you facts. Our road tests will be tests in every sense of the word, not mere impressions or reports. A report or impression will be so labeled. We will give praise when praise is due and offer constructive criticism where criticism is merited.

SCI is **your** magazine. It will be designed for you who like automobiles and will be subject to your requests, except in one particular. If you want wild rumor about non-existent automobiles or sensational pitches on dubious products you will have to look elsewhere; you won't find these in SCI. If you want the truth about sensational cars, such as those in the current issue, SCI is your magazine. If you want material that will help you understand your car or help you maintain that car, SCI will become a must on your reading list.

SCI is dedicated to The Automobile and all its works. This is our pledge to our readers present and future.

The Editors
SPORTS CARS ILLUSTRATED



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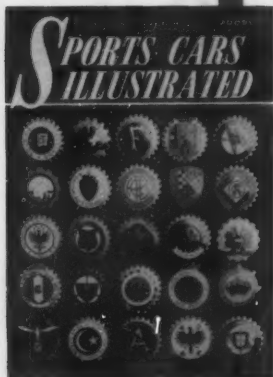
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SPORTS CARS ILLUSTRATED

april 1956

no. 10 vol. 1



Hiro Wakabayashi shot this month's cover, spending a great deal of time arranging the badges for the best display. See page 49 for more information on International Badges.

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very sincerely yours:

THE BATTLE is officially joined. Chevrolet's Corvette, taking a licking on all sides in the sales battle, has been revamped as a screamer for 1956. This, in itself, hardly classifies as news at this point. What does qualify for comment, though, is GM's decision to run a team of Corvettes in international competition starting with a debut at Sebring and continuing on to the big-time at Le Mans.

This bears out GM President Harlow Curtice's promise earlier this year that Chevrolet was definitely in the racing business and is out to win. No ifs, ands, buts or other qualifications; GM wants a winner. Further, the people at GM have never been known to play in a second string league for very long; when they set out to do a job, they do not play around.

All this has given rise to considerable speculation in the public mind that perhaps the American sports car star is on the rise, that we are about to enter new "golden age" of motoring.

Perhaps so, but the facts indicate otherwise. The roster of short-lived American sports cars is enlightening but gloomy. Where is the Nash-Healey? The Kaiser Darrin? The other abortive machines scheduled for mass production? Of them all only the Corvette and Ford's Thunderbird, a car that hardly qualifies, are with us today. From the way the 'Bird is going it appears likely that it will qualify even less in the future than it does now. This leaves us with the Corvette as America's only answer to the foreign sports car.

True, there are sport-type cars being announced in increasing numbers, but these machines cannot by any means be considered sports cars in the truest sense. Most of these are nothing more or less than factory hop-ups with far more power than they can economically use. Even worse, with two notable exceptions these Detroit bombs have been built with all the roadability of a greased brick. Road holding, pin-point steering and all those other attributes aside from sheer power that combine to make for pleasurable and safe driving are not Detroit strong points though they could be. The plain unadulterated fact of the matter is that Detroit has found out that they can sell cars without these factors. In short, most manufacturers don't need a sports car; what they don't need, they don't build.

Not even Chevrolet is in this racket *pour le sport*. GM is out to sell cars and the Corvette is a sales tool as well as a welcome item in their inventory. They are racing because they feel that they might sell more cars by so doing. If the sales curve on convertibles, wagons and sedans does not go up, and soon, as a result of the activity, the racing program will go out the window — period. If the Corvette itself doesn't sell, it, too, could easily be dropped; GM does not believe in loss-leader selling.

Call us pessimistic if you will, but these are the facts and we must face up to them. The picture could change practically over night if the Corvette is successful, but for the present, ownership of a sports car is still a "buy foreign or build it yourself" proposition. With this in mind, we're

behind Chevrolet every inch of the way. Perhaps by the end of the season Detroit will need sports cars.

Until then, don't hold your breath.

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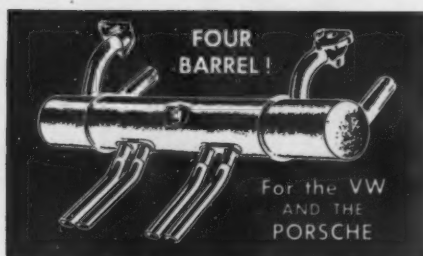
If, without even turning to the contents page, you'll just hold the magazine in your hand loosely and let it fall open, the chances are far better than even that it will open on a picture you have never seen. This picture, we think, represents the *new* SCI better than any number of words in any number of blurbs or editorials. As far as we can tell, this is the first time that the beautiful aluminum skin has been peeled back from the fabulous Mercedes-Benz 300 SLR. All the wonderful details of this world championship machine are laid bare for you — a veritable mechanical feast. Above the picture you will find not just the bare details but the *full* specifications and performance data, information that is not mere rumor but the straight dope right from the Stuttgart and the office of Dr. Nallinger. If you want fact, not fiction or rumor, this is it.

It may look as if we leaned a bit heavily on Mercedes this month and perhaps we have. It was partially accidental and partially a-purpose. The SLR story was tossed into our lap like a hot potato; it was just plain too hot to hold. The road test of the M-B 300 SL, on the other hand, was the result of long and careful planning on the part of SCI's topflight writer Griff Borgeson and yours truly. To gauge the effect of such planning, we passed the manuscript around the shop to a varied lot, from management to the office boy. Judging from the reaction received we can only say that if you don't feel a compelling desire to hock the homestead and rush with the loot to the nearest M-B emporium, you are either a very conservative and practical citizen indeed or you have no blood in your veins. For a vicarious ride in tomorrow's car today turn to page 10 and *live*.

• • •

Just about every interested party who hasn't spent all of his time in a vacuum knows by now that Stirling Moss, who is probably England's top handler, has given the home team a pass in favor of an all-out shot at the World Championship with Maserati. This decision, a wholly justified one in view of the facts, caused more Anglophilic breast-beating and Union Jack-waving than Cornwallis' surrender at Yorktown. Strangely enough, much of this dithering emanated from the United States where, theoretically, Stirling's choice of rides was nobody's damn business but his own. In view of the furor, SCI asked Bob Rolofson, a good friend of Stirling's and as American as a buffalo nickel, to give our readers a straight and dispassionate story on the choice and how it came about. Bob spent a good deal of time with the Moss family and the results of that visit can be seen on page 40. It is the true story of the decision completely shorn of all the hysteria. Let us now hear no more of the Moss employment problems.

Hope you enjoy the *new* SCI. If you don't, shout and if your voice is in the majority we'll endeavor to supply the lack. — *john christy*



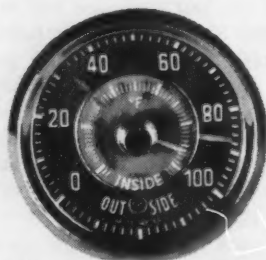
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letters

The Editor, SCI:

You must have realized the flood of mail you would receive in answer to James R. (Runabout) Alister's contribution to "Letters" in the January issue. So I won't disappoint you, here is my answer to his uncalled for blast at us who appreciate fine handling automobiles. First of all let us settle the matter of purchasing the magazine. I, for one, buy the magazine for its wealth of pictures of the latest automobiles, races and other points of interest in the auto world, not because I am so damn blind I can't see red letters one inch high.

Mr. Alister, you refer to must-be-different people. I'm sure you didn't buy your Cadillac El Dorado thinking you would drive down the street unnoticed.

Why don't you come out and admit it now, Mr. Alister, you actually bought your El Dorado thinking in your own simple way that you were acquiring a sports car. But after being ignored by the Jaguar and 300 SL set you have decided to wage your own little personal war.

The next time you buy a car, Mr. Alister, open your eyes a little wider than they were when you purchased your issue of SCI.

Charles A. Lee
Richland, Washington

The Editor, SCI:

Where can I get that fabulous duffel coat? It's just what I need for comfortable driving and a neat appearance when I arrive at work.

Bob Sweeney
South Chicago, Ill.
All Weber & Heilbronner stores carry this coat. There is undoubtedly a branch in Chicago.

The Editor, SCI:

Perhaps you can answer several questions for me, as to where I can purchase a few items.

First of all, I have tried a number of places to purchase Shelby seamless tubing, and it seems that there is no one around here that knows either where it is made, or who makes it, or where it can be found.

Next, I am very interested in front wheel drive sport cars, etc. I have tried several different models, using the conventional chassis, with changes, but they do not seem to adapt themselves very well to the front wheel

drive. I think my best bet is to start from scratch, hence the Shelby tubing.

I have been very interested in the Novi Special, but can't seem to find any great amount of data on same. Perhaps you could tell me where this could be found, along with other data on tubular frames, FW drives, etc.

Anything else your experience might help me with, would most certainly be gratefully appreciated.

O. M. Westlake
Cortland, N. Y.

Shelby tubing may be purchased from any aircraft supply house or surplus dealer handling aircraft equipment. Steel supply wholesalers are also a good bet. The Novi is a pretty poor starting point. Why not try a used Citroen?

The Editor, SCI:

Your Magazine is terrific. I really anticipate reading each issue.

However, just to keep the records straight, for the latest batch of sports car enthusiasts, in your January issue you stated that history would be made if that special Thunderbird and a Ferrari would dice at a stop light. I take it for granted you inferred that the Thunderbird would beat the Ferrari as it would take only 5.8 seconds to go to 60 M. P. H. A quick glance at the road tests of the Ferrari 250 Mille Miglia 2.9 litre states that the Ferrari goes from 0 to 60 M. P. H. in 5.1 seconds, and that was in 1954. Therefore, taking the driver factor as being equal, I doubt if history will be made.

Barry Aronovitch
Montreal, Canada

Granted; our reporter was just a bit overenthusiastic. However, much depends on the type of Ferrari and the distance travelled. A "road" Ferrari might be beaten to 60 mph.

The Editor, SCI:

I read with interest your article in the Jan. issue of Sports Cars Illustrated on Bill Frick's supercharged Cadillac powered Thunderbird since I've had the pleasure of driving this "Ferrari Fizzler." However, I would like to correct the author's statement that Frick has installed Cadillac engines "in just about anything that runs (except Cadillacs)."

Several years ago I had Frick install a new OHV Cadillac engine in a pre-war manual shift Cadillac. This trans-

formation took approximately 200 pounds off the front end and its performance was good enough to send quite a few unsuspecting, smug Oldsmobile owners to their mechanics and psychiatrists for "tune ups."

Bill Speedwin

Long Island City, N. Y.

This can be done with any pre-1955 OHV Cadillac or Olds engine to Cads as far back as the '37 floor-shift models.

The Editor, SCI:

It is unfortunate that what with all the lavish praise bestowed on the MGA (for Austin) in all the motor magazines, including my favorite, yours, that no mention, not one single sentence was devoted to remarking on the singular lack of so-called typical British workmanship on this new MG. The local phrase "Mickey Mouse" so very aptly describes it. In fact, people like myself are led to believe the sloppy way the car is put together is intentionally avoided. Those sharp unfinished edges, the way the batteries are stuck back under everything, the inglorious trunk "lock," the paper thin bonnet, the grill out even with the bumper — (there was a clever move), the bare, bare trunk interior, with a burlap cover for the spare. Certainly the photographs are beautiful.

As an excuse for this poor workmanship, that American cars are also put together sloppily is not enough. Sports car owners take more pride in their cars, enjoy polishing it daily—and such pride is impossible with this MGA. Also, citing its "low" price is not enough. I just finished the MG article in the February issue of SCI, which, after other praising articles, proved the last straw. However, I do thoroughly enjoy the magazine—very colorful and interesting all the way through. It is one magazine I save. Lots of luck —

Gary Sherman


Los Angeles, California

The Editor, SCI:

This letter is in reply to the letter sent in by Luther K. Laminole of Carmel, California, in your January issue.

Yes, Mr. Laminole, the Volkswagen was born at the time when the blood and tears of millions of persecuted people were flowing, but it was not conceived by a demented dictator. It

(Continued on page 65)



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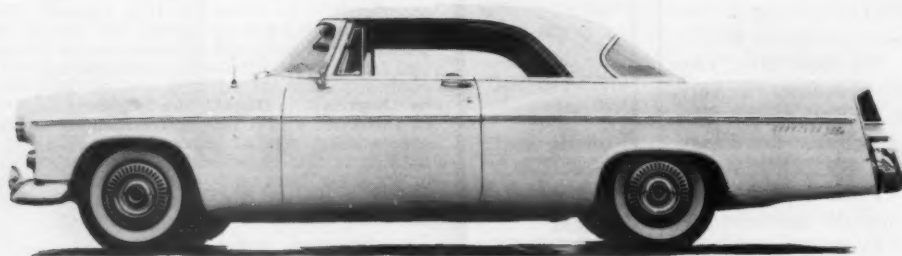
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APRIL '56

Introducing:



CHRYSLER'S latest bomb



WHEN the Chrysler line was announced late in 1955, much speculation was caused by the conspicuous absence of the fabulous 300 from the line-up. That speculation has been recently dispelled with the announcement and introduction of the 1956 Chrysler 300-B.

Spurred on by ever-spiralling power ratings and a complete sell-out of the 1955 model, Chrysler's hard-working engineers have pulled an additional 40 horses out of the big bent-eight for a thumping total of 340 claimed bhp.

Peak torque is also up with a rating of 385 lbs.-ft. Peak power is developed at a healthy 5200 rpm and maximum torque falls between 3200 and 3600 rpm which would indicate that performance is held over a fairly wide range.

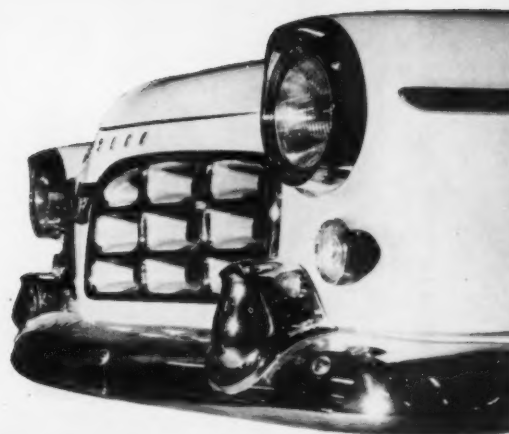
The new engine is basically the same as the one used for the past six years but is increased in size to a whopping 354 cubic inches and with a compression ratio of 9-to-1. Instead of the usual hydraulic valve lifters, solid tappets are used in conjunction with adjustable rocker arms similar to those used on Chrysler Marine engines. With these is a cam with a grind that only a few years ago would have been considered to be in the "awful-awful" category. Duration provided by this shaft is a frightening 280 degrees which compares more than favorably with the usual average of 250 degrees used throughout the industry. Despite this formidable timing, idle speed is only 650 rpm, an effect achieved through a careful design incorporating a long peak lift with a moderate valve acceleration or rate of lift. Consequently the car is relatively docile in traffic and at the same time packs a terrific belt in medium and high speed ranges.

For the first time the buyer has an option of either automatic or mechanical transmissions. The latter is geared 2.50-to-1 in low, 1.68-to-1 in second and direct in high. To make things even better for both the competitive and non-competitive buyer, no less than 14 optional rear end ratios are available for the 300-B. These range from a high of 3.08-to-1 to an extreme low of 6.17-to-1.





Modification of previous engine to 354 cubic inches with hot cam and a 9:1 compression ratio bring about a booming 340 horsepower.



Push-button or mechanical shifts are offered along with a host of luxury features. Speedometer is calibrated to 150 which Chrysler hopes will be fully justified during 1956 competition season.

Ride is smooth but, compared with other Chrysler products, stiff due to a high spring rate and stiff shock absorbers. The small sacrifice in the armchair ride is more than made up by the ability of the car to hang into a turn with all the road-holding of many sports cars.

Styling of the new car mercifully follows the past precept of moderation insofar as chrome and other decor is concerned. In general outline, the styling is similar to that of the rest of the Chrysler line with a low hood and upswept rear fenders terminating in a continuous taillight-bumper combination. One small strip of chrome runs from the headlight to the extreme rear and except for minor top and window trim this represents the main concession to the current yen for gaudy chrome. The familiar checkerboard grille remains in tasteful distinction to the massive look of the rest of the line.

The interior of the car is finished in natural leather and, due to a large overhanging safety pad, extending over the instrument panel, has the appearance of a roadster cockpit. All controls and knobs are recessed underneath the lip of the pad. The circular instruments, including a 150 mph speedometer, straddle the steering column for easy vision.

The 1955 production of about 2,000 cars was not enough to meet the demand, even at the comparatively high out-the-door price of nearly \$6,500. In view of the improvements and new options offered in the 1956 version, there is no reason to believe the picture will change. It looks as if the big V-bombs are here to stay. #

SPECIFICATIONS CHRYSLER 300B

List Price	(Detroit) \$3,997
Wheelbase	126 inches
Tread—Front	60.1 inches
Rear	59.6 inches
Length O.A.	222.7 inches
Height	59.1 inches
Width	78.8 inches
Weight	N.A. (approx. 4,000 lbs.)
Steering ratio O.A.	30.9 to 1
Turning radius	22 ft.
Transmission	Optional (see text)
Axle ratio	Optional (see text)
Engine	90° V8
Valves	OHV (rocker)
Bore	3.91
Stroke	3.63
Displacement	354
Comp. ratio	9:1
Max. bhp	340
Peaking speed	5200 rpm
Max. torque	385 lbs./ft.
Peak	3200-3600 rpm



Interiors of supple leather and subdued colors with full seat adjustability make the 300 a luxury "Gran Turismo" within the American tradition.

SCI

tests the sensational Mercedes-Benz

300 SL

*"...a car that can take
first place in a concours
and then clobber all comers
in a tough race. On all
critical counts it scores..."*

By GRIFF BORGESON

SO YOU can't climb Everest, you can't have Monroe, and you're not likely ever to ride a rocket to the moon. But you can, if you're properly heeled, achieve an experience that's in the same ultimate class — you can get yourself a Mercedes-Benz 300 SL. And if you really respond to machinery, the effect is the same.

After exhaustive road testing of a standard 300 SL, after driving impressions in a race-tuned version and interviews with several owners and specialist technicians, I'm ready to haul off and make a flat, unequivocal statement. This is the finest production sports car in the world. No exceptions, no qualifications. On all critical counts, it scores.



As a piece of automotive sculpture the 300 SL is a masterpiece. With its "gull wing" doors and its own Teutonic treatment of hippy, organic contours it stands splendidly apart from all the cliches of postwar styling, including the much-plagiarized Italian school.

The 300 SL is a car that can take first place in a *concours d'elegance*, then clobber all comers in a tough race. Manifestations of its might are victories won all over Europe and the U.S. from the world's best all-out competition sports cars.

At the same time it's a luxury carriage. Sports cars as a rule offer little in the way of comforts and nice refinements. In fact, starkness is part of the stock-in-trade of most sports car builders. But the 300 SL achieves the all-weather comfort and the rich finish of fine luxury cars without "engineering compromise" — that rarely-challenged excuse for typical sports car asceticism.

Beyond this, the 300 SL is prophecy incarnate. It's a pace-setter, a style-setter, a design conception that is bound to influence the world's automotive industry for many years to come. For example, a top Detroit stylist tells me that the 300 SL's roof doors are sure to be copied in the coming U.S. cars because they are the only means of getting in and out of the kind of ultra-low vehicles that the buying public craves. Several Detroit "idea cars" already have imitated this feature.

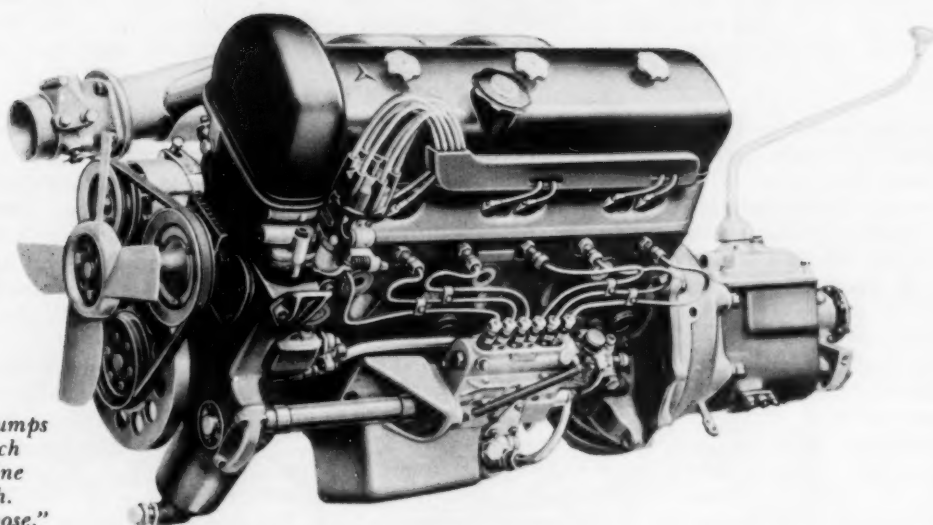
And styling is the least of the 300 SL's shock treatments to the industry. Gasoline fuel injection, first pioneered on the 300 SL, will give the internal combustion engine a new lease on life and probably delay the advent of gas turbines for years. Detroit, aware that FI means instant-



The 300 SL played its part in the three-way championship taken in 1955 by Daimler-Benz by mopping up the Gran Turismo category.



Author Griff Borgeson slide rules out some test figures. Note the seating position.



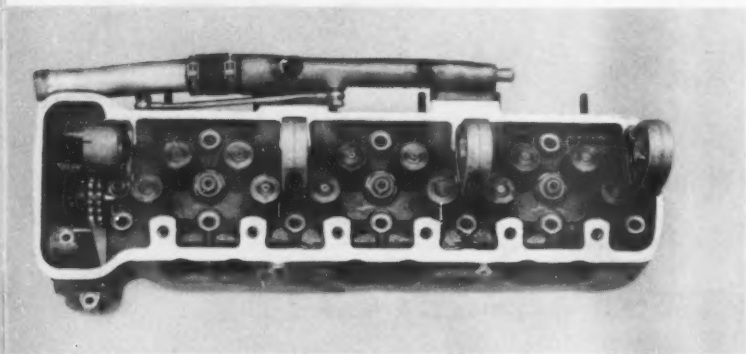
Single OHC six cylinder engine pumps 220 — 240 bhp out of 181 cubic inch capacity. Below 3600 rpm the engine is as docile as a flat-head Plymouth. Over that speed "all hell breaks loose."

SPECIFICATIONS

ENGINE:			Shock absorbers	Double-acting hydraulics, front & rear
Type		In-line six	Steering	Daimler-Benz recirculating ball type, hydraulically damped
Horsepower	Std. cam	220 bhp @ 6100	Steering wheel turns	1.7 from lock to lock
	Racing cam	240 bhp @ 6100	Turning diameter	38 feet
Torque, lbs-ft	Std. cam	202.5 @ 4600	Brake drum dimensions	Width 3.54 ins., Diameter 10.23 ins.
	Racing cam	217 @ 4800	Brake lining area	258 sq. ins.
Bore, stroke		3.35x3.46 ins. (85x88mm)	Wheel studs	Five, .55 in. diameter
Displacement		182.8 cu. ins. (2996 cc)	Tires	6.50x15 Continental "Super Record"
Bore-stroke ratio		one to 1.04	Tire pressures to 110 mph — front, psi 28.4 rear, psi 31.3	
Compression ratio		8.55 to one. (test car, 8.28)	over 110 mph—front, psi 31.3 rear, psi 34.1	
Valve train		Parallel valves, single over-head camshaft, chain driven	for racing — front, psi 42.7 rear, psi 49.8	
Fuel System		Robert Bosch direct, timed fuel injection	Wheelbase	94.5 ins.
Ignition		Robert Bosch battery & coil ignition	Tread	54.5 ins. Front, 56.5 ins. Rear
Lubrication		Dry sump	GENERAL:	
CHASSIS:			Length	16 ft. 10 ins. (178 ins.)
Front suspension		Independent with coil springs, forged, unequal-length wishbones	Width	5 ft. 10.5 ins. (70.5 ins.)
Rear suspension		Independent with two-pivot swing axle, coil springs, hypoid bevel gears	Height (no load)	4 ft. 3 ins. (51 ins.)
			Weight	2557 lbs., dry. 2855 lbs. ready to go with full fuel tank (34.5 gals.)

Feature Road Test:

The Sensational Mercedes-Benz 300 SL



Cylinder head used on 300 SL is very similar in layout to that used on K-type M-B. Valves are set vertically and are operated by single overhead cam through rocker arms.

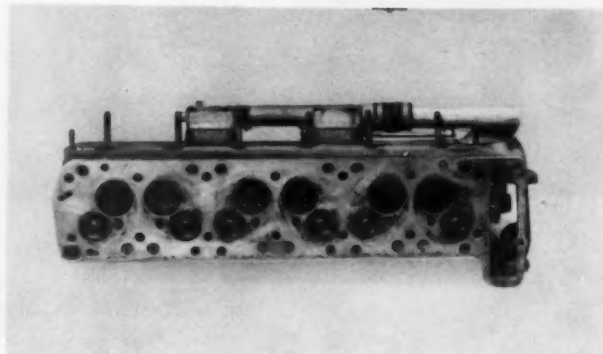
aneous throttle response, more horsepower and lower body lines, is already working all-out on injection. At the last count, there were 18 300 SL's in the possession of Detroit manufacturers who are boning up on FI's secrets.

Another feature that's bound to be copied is the position of the 300 SL's engine — mounted on its side to lower body lines and the center of gravity. The brakes are novel. While brake diameters in all cars have shrunk to conform to shrinking tire sizes, it took the designers of the 300 SL to think of widening the brakes to compensate for the lost friction area. The 300 SL has four-wheel independent suspension, a feature of M-B cars since the early thirties. This, too, is being readied on Detroit drawing boards. Even the intricate and expensive trapezoidal frame may be adapted to automation's techniques. Literally, the 300 SL is a car of the future that can be possessed today.

All 300 SL's are not necessarily alike. The standard package that you buy across the counter costs \$7,463 at U.S. port of entry. It's a magnificent performer, with dazzling acceleration and a top speed of nearly 140 mph. But there are many performance options. It's beautifully, finely finished, but there are many finish options. The result is that although you can get a 300 SL for under \$7500, few are sold for less than \$8,000 after licence fees, taxes and options have been added. And if you want a 160 mph, all-out competition 300 SL you can invest \$10,000 or \$11,000 with no difficulty. But don't get the idea that the pin-money 300 SL is anything less than a going bomb.

The fire engine red, strictly standard model that I first drove came to my door equipped with *meister mechaniker* Robert Leutge, an expert technician sent to the U.S. by the Mercedes factory to train agency mechanics. He tossed the door up, slid over to the passenger's side, and I entered.

With the 300 SL this is something of an art and it varies according to build, sex and dress. For the first or fiftieth time it's a thrill. Actually, the car is not a handy package to climb in and out of but the mild gymnastics involved are a small price to pay for what you get. The somewhat limited entry area provided by the roof doors is dictated not by the car's lowness alone, but also by the extreme depth of the light, rigid, "three-dimensional" tubular frame. When you sit in the car your elbow rests on the door sill, which is wrapped over the top frame members. To simplify entry and exit for the driver, all 300 SL's are equipped with a steering wheel that can be folded under the steering column. Also, although the steering column is



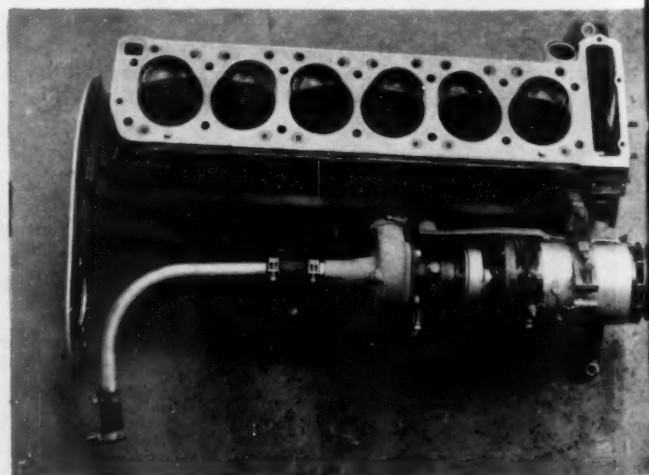
Underside of cylinder head shows that no combustion chamber as such is used. Mating surface is absolutely flat and the large valves set flush, similar to Howard GMC.

not adjustable, you can have your choice of two different column lengths.

The doors can be locked from the outside by the conventional method. To open them, you press a slightly protruding cam which exposes the door-handle. Give this an easy outward and upward tug and the door floats up to its full-open position, aided by springs that give just the correct amount of counterbalance. The door must be slammed hard to be closed and this produces a loud, jarring thud. On the inside door handle of every new 300 SL is a somewhat disquieting notice urging that doors be locked from the inside to guard against their opening spontaneously at high speed.

When you're seated in a 300 SL you know you're in. You're practically encapsulated. You feel very much a part of the car, as you should be. Visibility is good. Straight ahead and just below eye level are a big tach and a big speedometer. There are plenty of other instruments and controls and they take some time to learn.

The first thing I noticed was the low mileage registered on the odometer — significantly below the 1,000-mile break-in period recommended by the factory. But Leutge put me at ease.

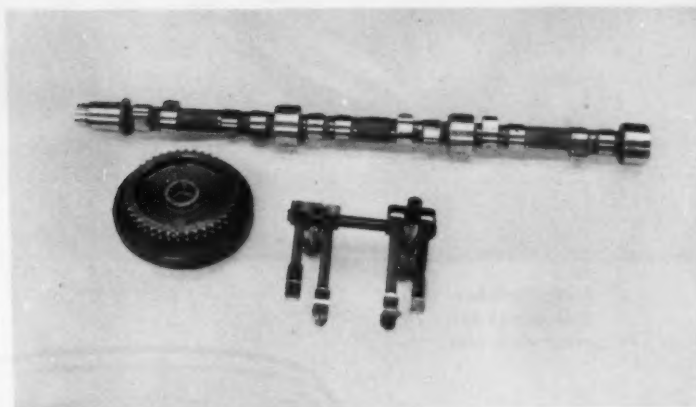


Block is a short, stiff six with a near-square stroke-bore ratio of 1.04 to 1. Combustion chambers are scooped out of cylinder bore instead of head. Note injector ports.

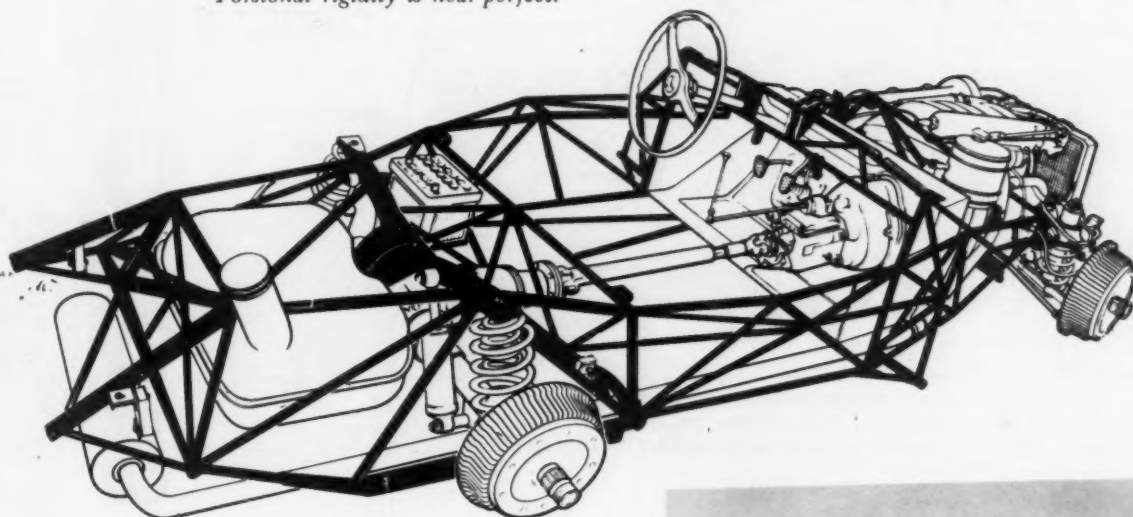


Connecting rods are short, sturdy H-section and are immensely stiff. Piston head is cut away to provide combustion space, quench area.

Long and short rockers are adjustable and paired off on individual stands. Chain driven camshaft has wide, wear resistant lobes.

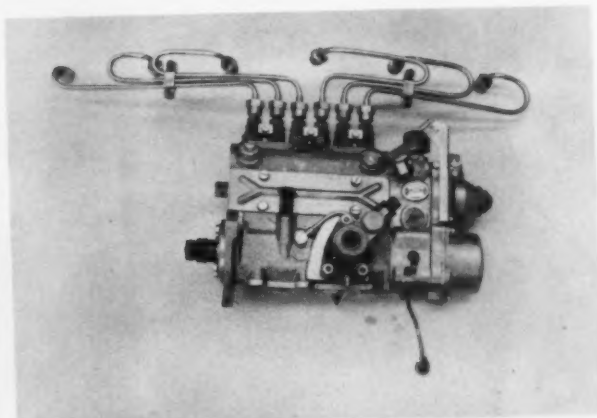


Light, multitube space frame is a major reason for the fantastic roadability of the 300 SL. Torsional rigidity is near-perfect.



COST OF CAR AND OPTIONS

Standard model, FOB Stuttgart, Germany	\$6,900
Standard model, U.S. port of entry	7,463
Color other than metallic silver	65
Bumper guards (4)	40
Windshield washers	18
Becker radio	264
Leather upholstery	165
Fitted luggage	85
If crated shipment from factory desired	80
Competition springs (4)	88
Competition front shock absorbers (2)	41
Competition rear shock absorbers (2)	85
Competition camshaft	73
Rudge wheels (5)	350
Optional ring and pinion gears per set	80
Car with aluminum body, full competition equipment, including Rudge wheels and two complete axles with choice of gear ratios	9,300



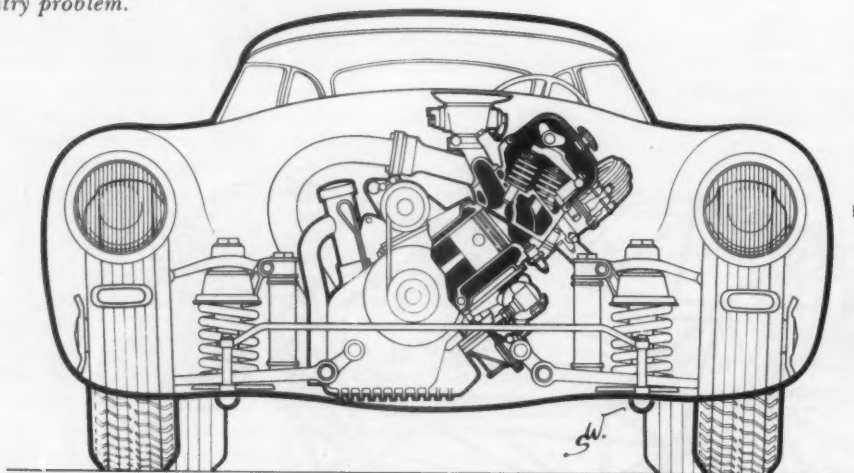
Part of the reason for the low rpm docility and torque is the expensive and complicated Bosch injector. Fuel is delivered directly to the combustion chamber in the block.

Feature Road Test:

The Sensational Mercedes-Benz 300 SL



Steering wheel will collapse to solve the entry problem.

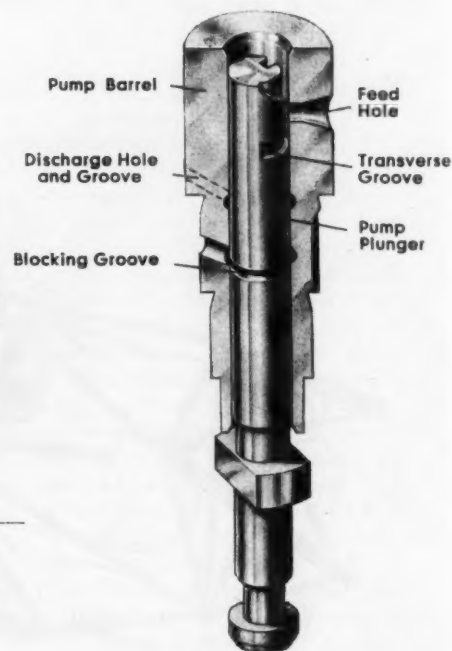


Cutaway drawing of prototype M-B used at Le Mans and Mexico shows 40-degree slant of the engine. Note that early type used downdraft carburetors instead of new FI.



The car has a trunk but for anything except soft goods space is a bit cramped by spare wheel.

RATING FACTORS		
BHP PER CU. IN.	Std. cam	1.20
	Racing cam	1.31
BHP PER SQ. IN. PISTON AREA	Std. cam	4.16
	Racing cam	4.54
LBS.-FT. TORQUE PER CU. IN.	Std. cam	1.11
	Racing cam	1.19
LBS. PER BHP, DRY	Std. cam	11.6
	Racing cam	10.7
PISTON SPEED @ 60 MPH (3.64 gears)		1520 ft. per min.
PISTON SPEED @ 6400 RPM		3575 ft. per min.
BRAKE LINING AREA PER TON, DRY		202 sq. ins.

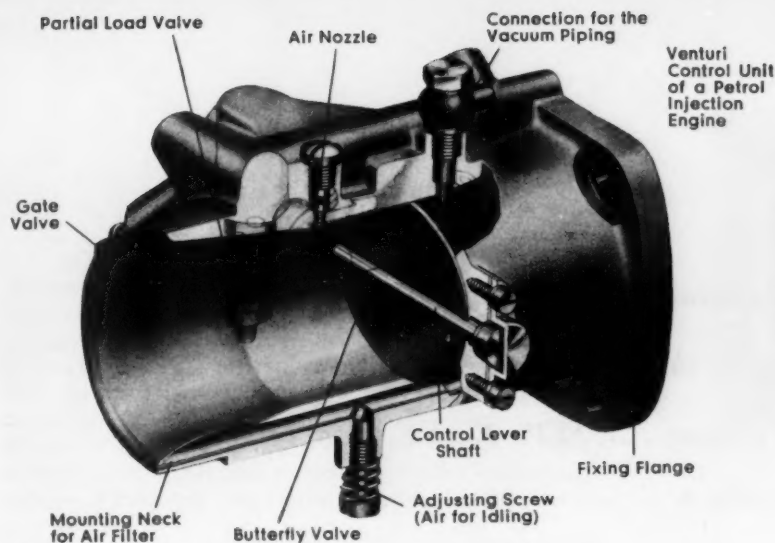


"You don't have to worry about winding up these engines," he said. "Before they're even dropped into a car they're run for 24 hours on a dynamometer, including six hours at peak output. Then they're torn down, checked, reassembled, and given another eight hours of running-in. Our times may be a shade slow, but don't be afraid to peak it in the gears."

The tricks of firing up a fuel-injection car are few and simple. For cold starts you pull out what corresponds to a choke and for hot starts you pull out a different button that causes a whining, high-speed pump to go to work in the fuel tank. It not only purges vapor pockets from the fuel system when hot, but also makes available a two-gallon reserve fuel supply. The factory recommends that the extra pump be used continuously during high-speed operation.

This is not one of those engines the existence of which its makers have spent millions to hide. It explodes into urgent, buzzing life, idling at a busy but smooth 750 rpm. and every fiber of the beast is ready to charge

(Continued on page 58)



*If you see this view of the 300 SL
in your mirror, move over.
It'll pass you anyway so you might
as well give it room.*

PERFORMANCE

(Standard model with 3.64 to one final drive ratio. Odometer reading, 920 to 960 miles)

TOP SPEED:

Two-way average 137.8 mph
Fastest one-way run 139.5 mph

ACCELERATION FROM STANDSTILL TO:

30 mph	2.9 secs.
40 mph	4.3 secs.
50 mph	6.0 secs.
60 mph	7.7 secs.
70 mph	9.5 secs.
80 mph	11.9 secs.
90 mph	14.5 secs.
100 mph	17.7 secs.
Standing 1/4-mile	15.9 secs. (Competition-tuned, same gears, 14.0 secs.)

SPEEDS AVAILABLE ON GEARS:

Transmission Gear Ratios	Approximate Speeds With Optional Final Drive Ratios — MPH			
I — 3.34 to 1	4.09 to 1	STD. 3.64 to 1	3.42 to 1	3.25 to 1
II — 1.97 to 1	34	39	42	44
III — 1.385 to 1	59	67	71	75
IV — 1.00 to 1	84	96	101	107
	127	145	155	161

(In IV gear the engine may be wound to 6400 rpm; in the other gears 6000 rpm should not be exceeded.)

FUEL CONSUMPTION:

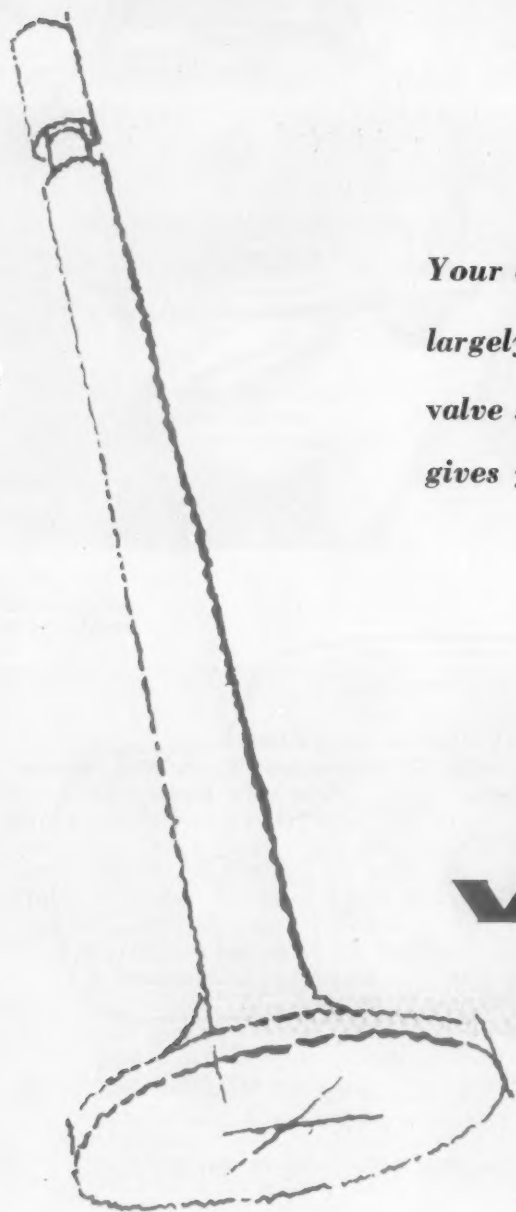
At steady 50 mph	approx. 25 mpg
Medium-hard driving	approx. 15 to 20 mpg
Hard driving	approx. 11 to 15 mpg



On a sharp, decreasing radius turn the 300 SL sticks tight at more than 60 miles an hour. Note the complete lack of body sway or lean as the coupe bites into the hard bend.



On a long, fast downhill bend there is no perceptible slide at a steady mile-a-minute clip. One does NOT try to horse the 300 SL around in a corner by stomping on the throttle.



Your engine's "breathing" is determined largely by the type, design and operation of its valve system . . . SCP's Karl E. Ludvigsen gives you a . . .

view on valves

You are thundering down the long straight at Le Mans in a big, American-engined sports car. A 4.5 Ferrari is pressing close for your position, so you brake late and hard for Mulsanne Corner, revving high to catch second gear at 100 instead of 90. You have done this before, but this time you are rewarded by a high-pitched chatter under the hood, and you know your race is run.

It is a cold, wintry morning, and as you start up your brand new four-door hardtop, you hear an appalling rattle up front. You switch it off and call your mechanic, who advises you to run it, and the noise will go away. Much to your surprise, this works, but even when the engine is warm you are disappointed in its performance at higher speeds. It seems gutty enough, but it winds out too quickly at high revs.

You can't blame bearings, rods, or compression ratios, let alone your gasoline. In any of these cases, you can say

"valves," and be pretty sure of being right. These simply-shaped components are probably the most highly developed parts in your engine, and are critical in obtaining better or best performance from your car. The valve itself and its placement are important, but its operation is no better than the equipment that opens and closes it. We can discuss both those elements briefly here.

The process of rapid burning that takes place within the cylinder cannot continue unless the burned, waste gases are removed and a fresh fuel-air mixture is brought in. The speed and efficiency with which the intake-burning-exhaust cycle is completed directly affects the power output of the engine. Intake and exhaust are the responsibilities of the valves, and burning is in part dependent on the combustion chamber shape.

The prime asset of the burning charge is its heat, and all efforts must be directed at retaining this, and the ac-

Sidevalve or "L" head arrangement gives poor breathing but quiet operation.

companied expansion of the gases against the piston. Heat can escape only through the walls of the cylinder and combustion chamber, and the larger the area of these, the more heat will be lost. Comparing known chamber types, the old L-head or side valve type suffers badly, with its spread-out design. A "flat-head" thus loses a lot of valuable heat to the cooling water, and when hopped up or driven hard it will heat up unless provided with a larger radiator. Remember, the bigger the radiator, the less efficient the engine.

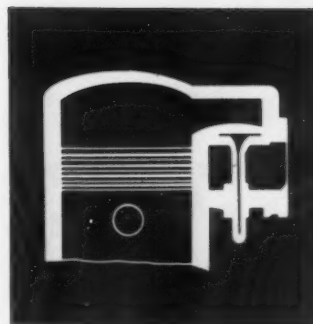
At the opposite end of the scale is the much-touted hemispherical combustion chamber. Since a spherical shape gives the very minimum surface area for a given volume enclosed, a relatively small amount of heat can escape by this route. The cleanness and symmetry of the hemisphere also promotes rapid and efficient burning, again in contrast to the ungainly and "hot-spotted" L-head. Indeed, some engineers feel that the hemispherical head, while admittedly tops from a power standpoint, produces burning a little *too* fast and thus too rough for passenger car use. This, among other arguments, has brought about the wide use of the wedge-type combustion chamber, as found in most of the current Ford and General Motors V-8's. The wedge chamber has a reasonable amount of surface area, and good resistance to "knocking". It represents an all-around compromise between the conflicting demands for power and smoothness.

Compromises again have to be made in the matter of valve sizes. The largest possible valves are desirable for rapid and efficient intake and exhaust, but, for more utilitarian purposes, smaller ports and valves give better control of the charge and its motions. Almost any mass-produced engine can stand some valve enlargement, at the probable expense of the lower end of the power range.

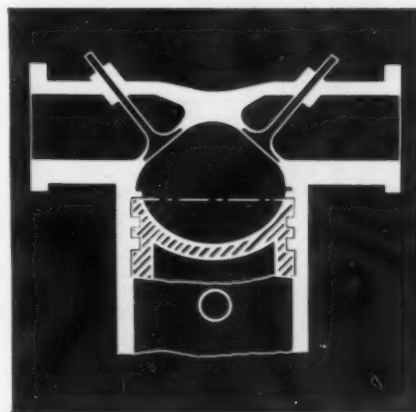
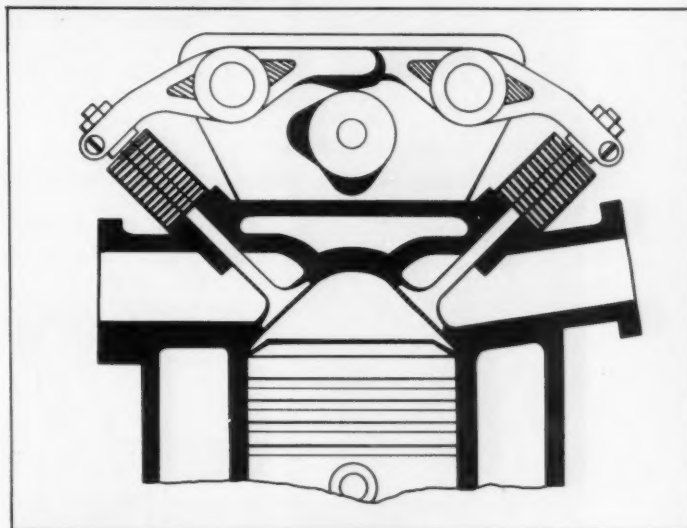
Very large valves can be accommodated in the hemispherical head, and it scores again on this point. The more constricted wedge chambers limit valve sizes in favor of smoother running. It is possible to build an L-head with large valves, but the combustion chamber then becomes even more distorted and cumbersome.

It is, of course, possible to have only one valve per cylinder, or even none at all, as in two-stroke engines. Several types of rotary and sleeve valves have been designed and used, which had only one controlled opening in or near the combustion chamber. The biggest general fault of such valves is that they depend on rotating seals and sliding movements, which are very difficult indeed to lubricate in the face of combustion heat. The ordinary poppet valve, opened mechanically and positively sealed by cylinder pressures, in spite of its physical problems has proved the simplest and most economical solution. Developments such as special steel alloys, special valve seats and internal sodium cooling have allowed poppet valves to live economically under the most difficult conditions.

The biggest modern valve problem, then, is not making valves last but operating them. It is really remarkable that an engine runs at all at speeds where the weight of a valve has to be batted back and forth some 70 or 80 times a second. This reciprocating motion is very difficult to con-

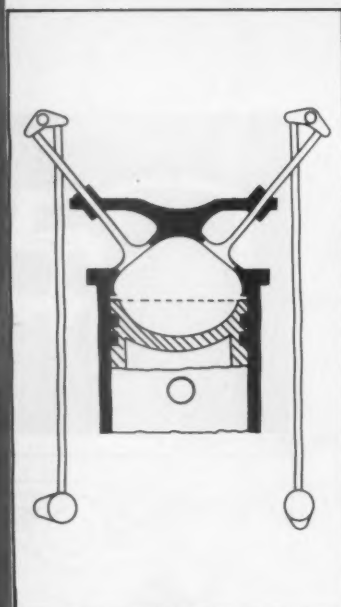


Hemispheric combustion chamber and single overhead cam is highly efficient but costly.

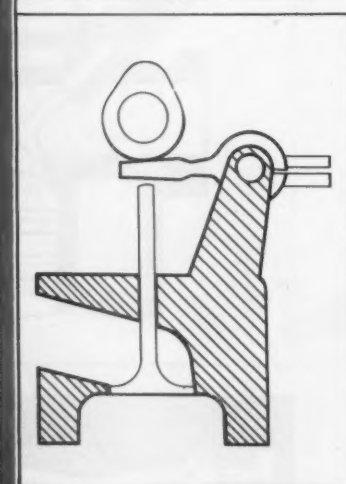


Hemispheric piston cutout "reflects" gases to valves on exhaust stroke.

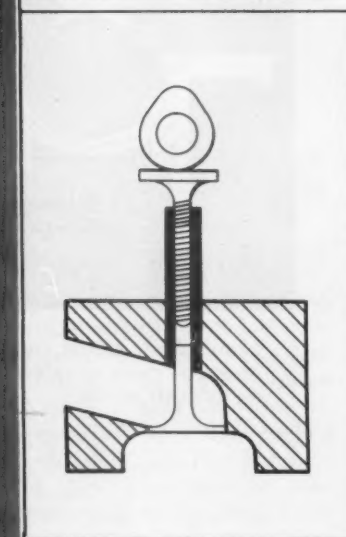
True hemispherical chamber is ideal, but is mechanically awkward.



Overhead cam acts directly through adjustable tappet.



Tapered finger between cam and stem allows adjustment at eccentric pivot.



trol accurately, and has led to the above-mentioned rotary valve experiments. Back when cars began, the intake valve was opened by the suction of the piston downstroke, and closed by a weak spring. We have now improved somewhat on this, and use a cam for opening and a spring for closing. You should keep in mind the fact that the two portions of the cam have quite different jobs to do. The first half must lift the weight of the valve and its drive gear, while the second half should guide the valve as it comes back down under spring pressure. It is thus not at all necessary to have a symmetrical cam.

The whole system is like a fast game of volley ball between the cam and the spring, with the valve being tossed about. You know that the game is much slower and more difficult if a heavier ball is used, and the same is true of the valve. The lighter the valve and its operating gear, the easier the cam and spring will be able to control it. For best results, then, the camshaft should be as close to the valves as possible. Unfortunately, the camshaft must be driven from the crankshaft, which is at the opposite end of the engine from the valves. Again, compromises must be made, keeping in mind economics and the use for which the engine is intended.

Generally speaking, the L-head and the twin overhead camshaft designs represent the opposite poles of valve gear design, and push-rod overhead valves are in between. Ohc and side-valve designs are similar in that they provide a minimum of weight between the cam and valve, but the ohc layout has introduced camshaft drive complications to do this, while the side valves have distorted the combustion chamber in order to keep a simple timing gear setup. Where performance is secondary to cheap construction, the L-head is quite satisfactory, and it was for a long time standard practice in this country. Keep in mind that it will give just as good valve control as an overhead camshaft, but the combustion chamber required places it at a hopeless disadvantage.

When trying to make an L-head produce a little more, one of the most important steps is relieving the block. This involves cleaning out the block area between the ports and the bore, and greatly improves the combustion chamber shape. It is particularly useful when higher compression ratios are employed. The old Ford and Mercury flat heads had no provision for valve adjustment, and for either everyday or hop-up satisfaction a set of hardened adjustable tappets is a good investment.

Overhead cam layouts vary a great deal, but one of the most popular schemes is that used by Jaguar and Aston-Martin, among others. They place a compact cup-shaped tappet between the cam and valve, its skirt encircling the valve springs. This tappet thus relieves the valve stem of lateral forces, and adjustment is effected with hardened shims between the tappet and stem. Another method, championed by Porsche now and Mercedes in the past, is to insert a pivoted finger between the cam and valve. If the end of the finger is tapered, clearance can be adjusted by rotating an eccentric at the pivot point. It is also possible to use a single overhead cam and operate inclined valves through rocker arms, as typified by most Ferrari V-12's.

Transmitting the rotary motion from the crankshaft to

the camshaft has been the big production problem in ohc designs. A multiple gear drive is best for accurate timing, but is obviously expensive and inclined to be noisy. Chain drive has proved satisfactory for most engines, tension being maintained by an idler pulley or a Weller spring tensioner, as originated on A.C. cars and adapted by Jaguar. Bugatti and M.G. long used shaft drive for their overhead cams, and Porsche continues this simple arrangement. Again, the complex job of driving these overhead cams is simply not worth it in production designs, as long as operational speeds remain below roughly 5000 rpm. If higher speeds are contemplated, ohc's may be justified.

Overhead valves opened by pushrods from a crankcase-mounted camshaft have won world-wide approval, and provide a studied balance between a good combustion chamber and camshaft drive simplicity. They can be found on any American V-8, and on the majority of English and continental sport and touring cars. The twin overhead cams get the glory, but the pushrods get the job done. This is all the more remarkable in view of the fact that pushrods and rockers add considerably to the weight of the valve gear, and are the hardest of all types to control properly.

The two compromises of wedge chambers and pushrod-operated valves are usually found together, with the valves placed in a single plane along the head. This allows the use of a single pivot shaft for the rocker arms. It will be seen that if the valve is to lift just the same distance as the tappet, the two ends of the rocker arm must be of the same length. By varying the length of the pushrod end of the rocker, the valve lift can be altered for a given camshaft, and this is the very valid principle of the popular "high-lift" rocker arms. Recently Chevrolet and Pontiac have dispensed with the rocker shaft, pivoting each pressed rocker spherically from an individual stud. This is simple, cheap, and induces a self-centering action in the rocker. With solid tappets, valve clearance can be adjusted either at the pushrod end of the rocker, or at the spherical pivot point, depending on the rocker type.

Increasingly common nowadays is hydraulic valve adjustment, which is usually incorporated in the tappet. It insures silent operation, except when oils are thick on cold mornings. At high engine speeds, however, its mechanism is somewhat slow, and its added weight is undesirable. The French Panhard gets around this by providing hydraulic adjustment at the pivot point of the Chevrolet-type rockers, and Pegaso may have a similar trick in the works.

Simple but essential, the pushrods themselves are usually tubular, either with formed ends or sweated fittings. They are inclined to bend above certain speeds, and once bent can never satisfactorily be straightened. While parts of a pushrod valve train can be lightened somewhat, absolute rigidity is always the most important criterion.

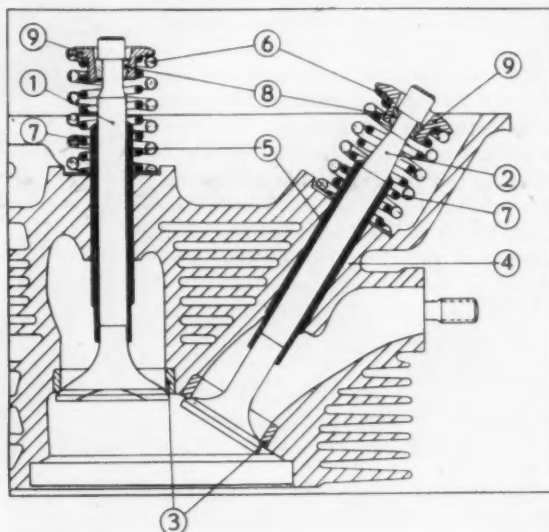
Among other general valve design solutions is the current trend to dispense with separate pressed-in valve guides. Direct contact between valve stem and block aids heat transfer there, and cuts valve head temperature by some 200 degrees F. Another point is the importance of engineered valve spring installations. Blind experimentation with springs is likely to be pretty unproductive, as their design must be closely integrated with the cam contours and the valve gear weight. Double or triple springs

are sometimes used to eliminate unwanted oscillations, and this is an even trickier phase.

Valve springs may soon be among the unemployed anyway if racing research by Mercedes-Benz proves fruitful. Termed "desmodromic," as a corruption of a French term, the Mercedes and similar systems close as well as open the valve positively, without the aid of springs. Mercedes does it with two cams per valve, and a pair of rocker arms. Such an arrangement sweeps away the ceiling on revs, and gives the designer a freer hand in valve opening accelerations. So far, the necessary clearances have made noise a problem, apart from exacting machining, and the one 300SLR coupe that Mercedes has completed is notable both for its performance and for the grinding sounds under the hood.

Hemispherical heads, then, with inclined valves and overhead cams are very potent, but equally expensive. At the opposite pole is the cheap and inefficient L-head. Pushrod operation with wedge chambers is efficient, smooth, and economical, but due to its weight places a limit on engine speed. This limit was more than once passed by Cunningham's Le Mans cars, with destructive consequences. The future may bring further simplification and elimination of springs, but the mass-produced design will always be a justifiable compromise.

1. intake valve
2. exhaust valve
3. valve seat
4. cylinder head
5. valve guides
6. outside valve spring
7. inside valve spring
8. cotter
9. valve spring retainer



APRIL '56



THE competition scene, once dominated exclusively by the products of a few manufacturers is changing rapidly. The once unassailable position held by a few of the more glamorous (and expensive) marques is under heavy assault by the home-built special.

One has only to look at the record to realize that the backyard boomers are making a healthy dent in the winners' circle at virtually every major and minor course in the country. Familiar to all are such formidable pieces of machinery as the Baldwin Mercury, the Troutman-Barnes Mercury, the Miles MG's, the Candy Poole PBX and the small but mighty Poopers. All have become known as giant killers, successfully shutting down such competition as OSCA, Maserati, Ferrari, Jaguar and the 550 Porsche.

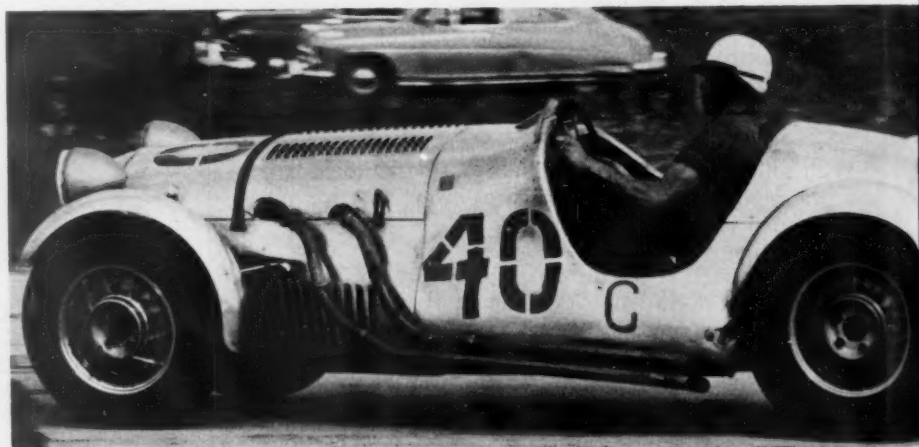
In the West the specials have become so numerous as to dominate every full-bore main event held. The recent Palm Springs event contained so many home-made machines that a picture of the start showed only one manufactured and known car in 10; the rest were strictly special.

The reasons for this are two-fold. First, sports car racing is getting rougher by the meet, with each successive event showing faster and faster lap and straight-away times. It has come to the point at which the only marques that stand a chance are Ferrari and Maserati, and even they get pushed. The more standard machinery hasn't a prayer of earning any hardware. The second major reason is one of cost. To compete successfully in the main show one has a choice of spending Ferrari money or building something hot for a fifth of the Ferrari price. There's a third choice — one can also run one's everyday set of wheels, but in today's rugged races this is merely asking for the privilege of giving the cab or transportation companies money, to say nothing of the repair bills.

Specials are a much better solution. Beside that, they're fun. Gentlemen, meet the Special; you're likely to see a lot more of this item. #

Backyard Ferraris

Once considered a "poor relation," the special is becoming a dominating force in competition

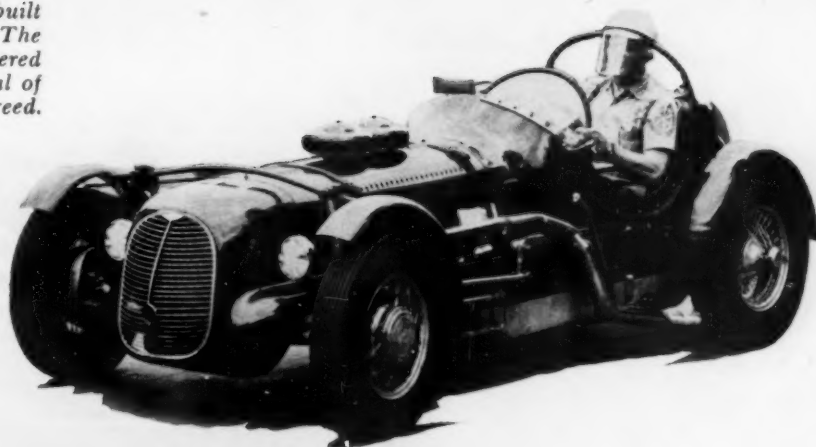


The Jaguar makes a good base on which to build. Charles Schott's car is typical.



Poole PBX Crosley-powered special is known throughout the East as a giant killer.

Some of the hottest specials are built from race car antecedents. The tremendously quick Cadillac-powered Meyer Special is typical of this booming breed.

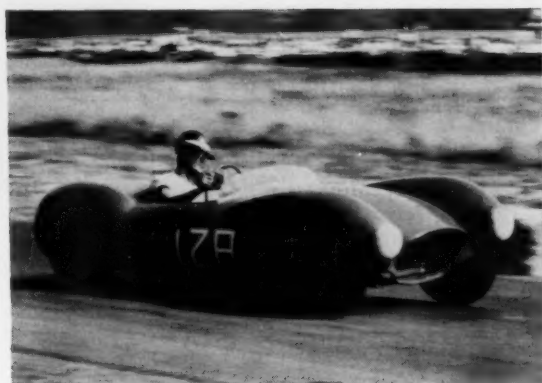
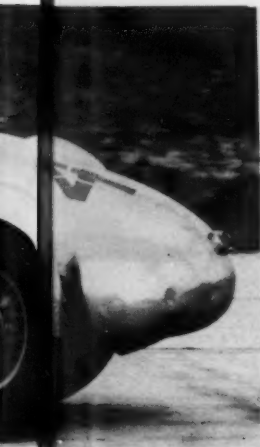


Photographs by Irv Dolin and John Christy



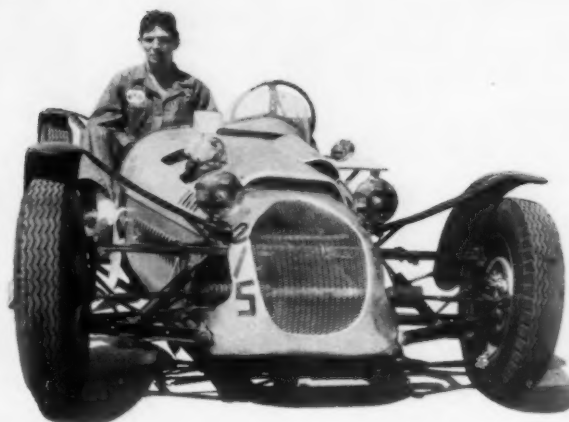
Fiberglas is a boon to the special builder. The Allied coupe was built from a mold taken directly from a Cisitalia and fits without change on MG TC or TD chassis. Price is slightly over \$500 complete.

Well known in eastern races is the Hansgen Special, built from Jaguar components. A potent machine, the car was a winner in the 1953 Watkins Glen race and still performs with the best.



Rarely seen are specials based on the Jowett Jupiter. This one, built in Canada, has been equipped with a light aluminum body of the owner's design.

Bodies for specials can be elaborate or simple. This West Coast MG-based special is a tough contender representing a fairly small outlay in cash and a large outlay in time. Note the cross-sprung front suspension.



APRIL '56

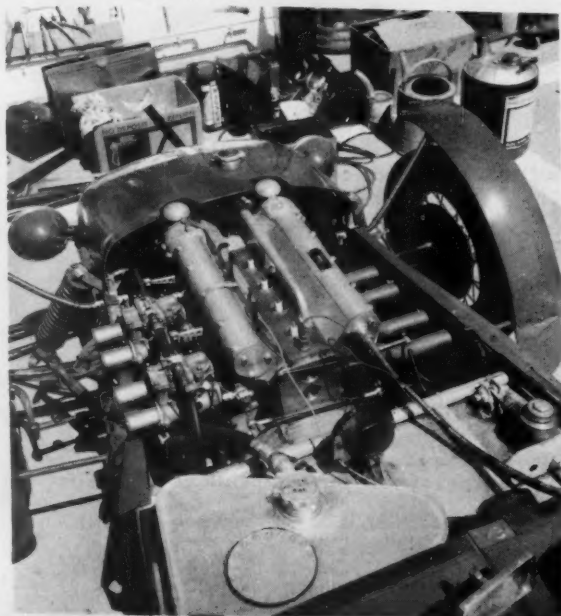


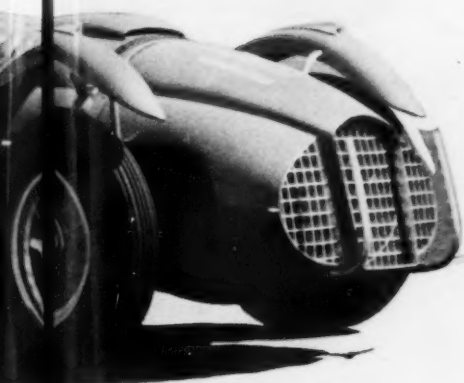
The "Pooper" is a new development incorporating the fantastic road-holding of the Cooper with the power of the Porsche. Top is Gordon Lipe's original Formula Libre car. Second photo shows it in sports car guise. Bottom is Pete Lovely's Cooper record streamliner based machine which takes 550's easily.



The Volkswagen, much to the annoyance of the factory, also can be made into a potent special. Charles Rutan's VW is an amazing performer and will stand fantastic abuse.

The 91-cubic-inch Offenhauser, tuned for gasoline, is rapidly gaining favor for use in Class F specials. Engine is now being made available with MG gearbox, Weber carburetors, battery ignition.



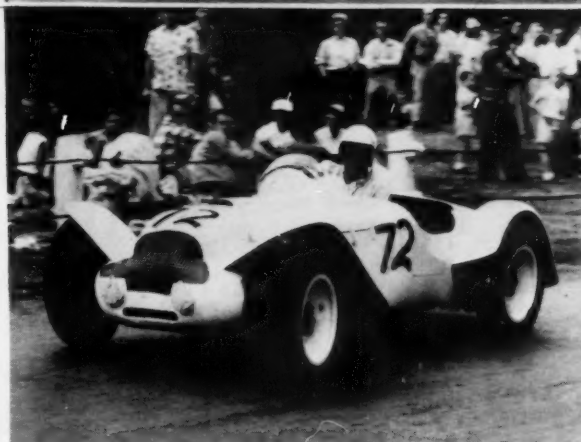


Joseph Guibardo's hot MG was based on lightened TD chassis, using simple but functional aluminum body.



Coby Whitmore's Jaguar special was one of the earliest, having been built and first driven in 1951. Car is now powered by Cadillac, a growing tendency.

Duncan Black's MG special is actually a special-special. Car was rebuilt from a Lester MG and modified far beyond Lester specifications.



The Pupildy VW is a consistent threat in class. Body is of Fiberglas mounted on a highly modified chassis. The VW powerplant has given the full-race treatment with excellent results, fair reliability.



Another Jaguar special is the ex-Sherwood Johnston machine. Though more than homely, the car is a potent machine and a definite threat.



Another simply-constructed MG-based special—nearly half the original weight has been stripped away and the engine modified to produce approximately fifty percent more horsepower.



Language of Measurement

The well-informed enthusiast is a bi-lingual character, as much at ease with metric terms as he is with our own medieval weights and measures. Here's how it's done.

By KEN KINCAID

THE MOST surprising weights-and-measures conversion I ever witnessed took place in a small grocery store in a Mexican backwoods village. It was a pitch-black night and I had just enough gas in my car to get me abreast of the gasoline lantern in the store's doorway—the one point of light in the little town. I scoured the place for fuel, found none, and settled by buying all the white gas the storekeeper had on hand for his lantern. I was astonished to see him heave the canister onto the grocery's battered scale. "Do you sell fuel by weight?" I asked. "Either way," he replied patiently, "since one liter weighs one kilo." This, if true, is a remarkable coincidence. If not, it's amusing folklore.

On the whole, however, there is very little folklore connected with the metric system. It compares with our own British-American system of weights and measures as algebra compares with double-talk. The metric system is simple and logical. The system we're stuck with is chaos and confusion.

We have inches, feet, yards, rods, poles, perches, furlongs, spans, hands, leagues, miles, fathoms, chains, gills, pints, quarts, gallons, pecks, bushels, long tons, short tons, Troy weight, Avoirdupois weight, Apothecaries' weight, and so on, *ad dementia*. Carrying all these in the brain is a scholarly accomplishment that few can bother with.

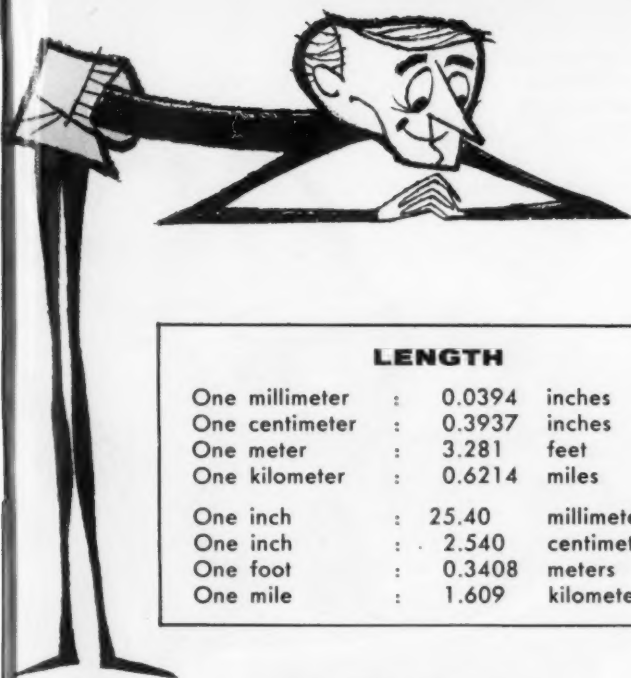
But memorizing the entire metric system is child's play.

Consider, for example, the simple logic of the metric measures of length. In this system each term has a "times-ten" or "divided-by-ten" relationship to the basic unit, the meter:

Unit	Value in meters
Micron	0.000001
Millimeter	0.001
Centimeter	0.01
Decimeter	0.1
Meter	1.0
Dekameter	10.0
Hectometer	100.0
Kilometer	1000.0
Myriameter	10000.0
Megameter	1,000,000.0

One of the fortunate by-products of a serious interest in foreign cars is that you learn to work with the convenient, rational metric system. You become "bi-lingual" and can translate freely from English to metric units and back again. This accomplishment is useful in many trades and professions at home, indispensable when you travel abroad. And it is, of course, a must for the foreign-car *aficionado*.

Here, then, are all the conversions you're ever likely to need for facility in measurement translation. Also included are some units often used in English automotive literature but scarcely known in the U.S.



LENGTH

One millimeter	:	0.0394	inches
One centimeter	:	0.3937	inches
One meter	:	3.281	feet
One kilometer	:	0.6214	miles
One inch	:	25.40	millimeters
One inch	:	2.540	centimeters
One foot	:	0.3408	meters
One mile	:	1.609	kilometers

TEMPERATURE

The Centigrade scale is the logical metric equivalent of our none-too-logical Fahrenheit scale. The C scale takes the freezing point of water as zero and the boiling point as 100 degrees (at sea level and at a specified barometric pressure). The conversion is complicated:

Fahrenheit to Centigrade: Degrees F minus 32, times 5, divided by nine. Or $C = (F - 32) \times \frac{5}{9}$

Centigrade to Fahrenheit: Degrees C times 9, divided by 5, plus 32. Or $F = (C \times \frac{9}{5}) + 32$

VOLUME

Instead of cubic inches, pints, quarts, gallons, and imperial gallons, which have a confusingly irregular relationship, the cubic centimeters and liters of the metric system are, like the meters, also related by the simple factor of ten.

One cubic centimeter	:	.061	cubic inches
1000 cubic centimeters	:	One	liter
One liter	:	61.02	cubic inches
One liter	:	0.2642	U.S. gallons
One British Imperial gallon	:	0.8333	U.S. gallons
One cubic inch	:	16.39	cubic centimeters
One cubic inch	:	0.01639	liter
One U.S. gallon	:	3.785	liters
One U.S. gallon	:	1.2	Imperial gallons

AREA

Area figures are often of importance—when, for example, you're calculating frontal area, piston area, and port areas. The British are in the habit of expressing cylinder bore in metric terms and, in the same breath, expressing piston area in English units.

One square inch	:	6.452	square centimeters
One square foot	:	0.0929	square meters
One square centimeter	:	0.1550	square inches
One square meter	:	10.76	square feet



FUEL CONSUMPTION

One mile per gallon	:	.425	kilometers per liter
One kilometer per liter	:	2.35	miles per gallon

VELOCITY

Both the English and metric systems agree upon the hour as the universal unit of time, which helps to simplify calculations of speed.

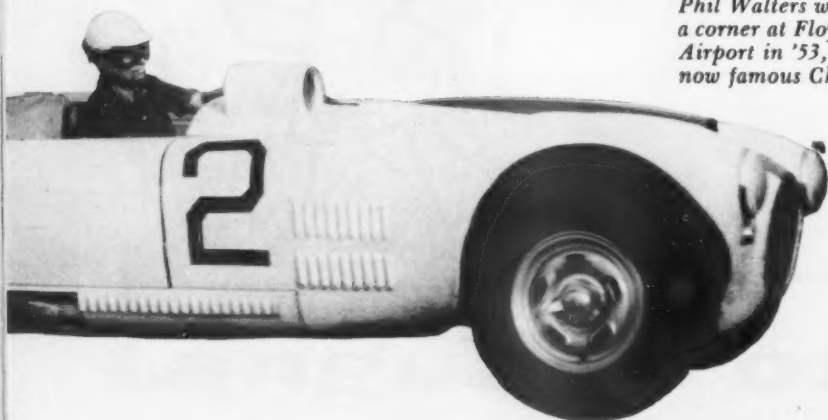
One meter per second	:	0.03281	feet per second
One kilometer per hour	:	0.6214	miles per hour
One mile per hour	:	1.609	kilometers per hour
One mile per hour	:	1.467	feet per second
One foot per second	:	0.6818	miles per hour

ENERGY

One pound (or foot-pound)	:	0.1383	kilogram-meter
One U.S., British horsepower	:	1.014	metric horsepower (abbr. CV, PS)
One pound per square inch	:	0.0703	kilograms per square centimeter
One kilogram meter	:	7.233	pounds-foot
One metric horsepower (CV, PS)	:	0.9863	U.S. or British horsepower
One kilogram per square centimeter	:	14.22	pounds per square inch



Phil Walters wheels the C4R through a corner at Floyd Bennett Airport in '53, powered by now famous Chrysler 300 engine.



why I quit building the Cunningham

By BRIGGS CUNNINGHAM as told to BOB FENDELL

I TRIED to win the Le Mans 24-hour race for Americans with an American car. I have stopped trying because I, personally, can't afford to compete against the biggest manufacturers in Europe, especially when I have to build my cars from the smallest fitting on up.

That doesn't mean that some other American can't take American components and build a car which can win at Le Mans. It surely doesn't mean that an American car company couldn't build such a car.

It means that, after five years of trying I and the Cunningham were losing ground to the foreign car companies, and my expenses — compared with the results — were getting out of hand.

The people connected with Le Mans are there strictly for business. The foreign drivers get paid to win. They are professionals and make their living that way. The European companies have always tried to get some kind of honors there, firstly because the European car buyer is much more interested in the performance of the car he drives, and secondly because Le Mans is the traditional, the easiest and possibly the best place for a car to make a reputation.

We came over there primarily as sportsmen in 1950 and I like to think that before we were through we had made the Europeans take us as a serious threat despite the fact that even at the 1955 race we were still conceding weight and size.

But my basic problem was simple. I had run out of American engines competitive with what the Europeans were tossing at me. I would have had to build, design and engineer my own, and that runs into fabulous amounts of money. I had already started building — or modifying from various components — practically everything for my competition car.

Working backwards, my last try was with an Offenhauser 3-litre engine. I had comparatively light weight in a com-

petitive chassis even though the engine was not the most advanced design in the world.

The Offy had been developed to run on alcohol and other special fuels for so long that we had a reconversion job on our hands. We never managed to lick the problem of getting the Offy to deliver the performance we needed on pump fuel.

We ran a modified Ferrari at Le Mans in 1954 with a 4.5 litre engine and liquid-cooled brakes. It broke a valve spring and retired.

The reason we had switched to Offenhauser from the Chrysler engine which had powered earlier Cunninghams was that our last model, the C6R, (raced at Le Mans in 55) was a much smaller car than its predecessors and the Chrysler powerplant was obviously too big for it. This — and the very first car I ever built — were the only racing Cunninghams not powered by Chrysler. The first try in 1950 was made with a Cadillac and I finished 11th.

Incidentally, this is as good a time as any to scotch the rumor we didn't get cooperation from the Chrysler people. They did everything we asked of them plus. It's not generally known but back in 1951 Chrysler let us buy a number of the engines that now power the 300. Remember the engine in the Chrysler dream car that was supposed to develop well over 300 horsepower? Well that is the one we got — with complete suggestions of how to modify it.

They helped us also with engineering problems it would have taken us days to work out by ourselves. For instance, if we wanted to know the correct spring rate for a certain load, all we did was pick up the phone and call them. They'd use one of those big computers to do the math and have the answer for us fast.

We got about 250 brake horsepower at the start, using Cadillac pistons and connecting rods. With further modifications we managed to boost this to 300 where, under



In 1950 the "Monster," sometimes known as the "Tank" was run at Le Mans, finishing 6th. Body by Bill Frick of Long Island; engine was a Cadillac.

Construction was discontinued on Vignale bodied, torsion suspension C-3 when Palm Beach factory was sold.

our conditions, the lobes of the Chrysler camshafts kept shearing off. To correct this a roller type camshaft was developed. Now Chrysler has a readymade cam if they ever want to boost beyond present outputs. Though we had run at 8.5:1 compression ratios in short races, we had to back down to around 7.5 for long-distance events. This is another problem an American at Le Mans has to lick. French pump fuel does not have quite as high an octane rating and one takes chances when running at high compression ratios for long distances at high speeds.

Carburetion was another place we had to experiment. We started with four single Zeniths, shifted to four dual Solexes and finally ended with four dual Webers, while Chrysler now uses dual four barrel carbs. That's the equivalent of a carburetor per cylinder which is about as far as you can go. Of course, one of the new Panhards, I believe, has two per cylinder but we never considered that.

Chassis and suspension weren't as difficult a problem because we could design and build our own. We started with an independent front suspension coil spring and wishbone, and a De Dion rear end, ending with the same set-up in the final model. In between, we developed a torsion bar suspension with a solid front and rear axle on the C-5 in 1953.

We also built our own car bodies, cutting weight finally to under 2500 pounds for the car complete and ready to race.

But we couldn't find an American transmission suitable because there just weren't any. We felt the only other solution would have been an automatic drive but they were just too unreliable and heavy to consider for racing conditions. Besides they weren't too successful in the Allards which raced over here. So we ended up with modified Siata (Italian) and Z-F (German) transmissions with four speeds forward.

The reasons I gave up building the custom Vignale-bod-



At Le Mans in 1955 the C6 ran with an Offenhauser engine modified for use of pump fuel instead of alcohol.

ied touring Cunningham were similar to those basically underlining the competition car's finish — it wasn't working out financially. At the comparatively high price, we weren't selling enough to get into sufficient production. Moreover we had to ship each chassis to Italy to have the body built and mounted. Besides we were due for a design change which meant more expense. We had hoped the C6R would lead us into a new design. It might have if we could have solved the engine problem.

When I sold my factory to Jack Shakespeare of Illinois, I tabled the idea of winning Le Mans with an American car of my own manufacture. Maybe somebody else can do the trick, starting us off by winning in a foreign car, until such time as an American manufacturer builds a winning car.

One impression we did leave in Europe — that American cars are remarkably trouble-free. One day we may prove they are also remarkably fast, and maneuverable.

You know Americans have become tops at one time or another in just about every sport you can think of — but not in modern auto racing. We've been on equal terms in international boating, tennis, etc., but when was the last great American international racing car?—Jimmy Murphy's win in a Duesenburg at Le Mans in 1922. (ed. note—outside of Indianapolis)

In Europe, it's a matter of national pride to win at Le Mans. For instance, the Italians have subsidized Ferrari. But since American cars seem to be built for American conditions and driving habits, there's no real incentive for an American manufacturer to set up an international factory racing team.

But you never can tell. After all, a Corvette or a Thunderbird could be the sire of an American thoroughbred at Le Mans. Maybe things are changing.

#

"Good but not good enough" was his verdict after testing British GP cars. Here is why Moss bet on Italy for the Championship.

How Moss Chose Maserati

By BOB ROLOFSON

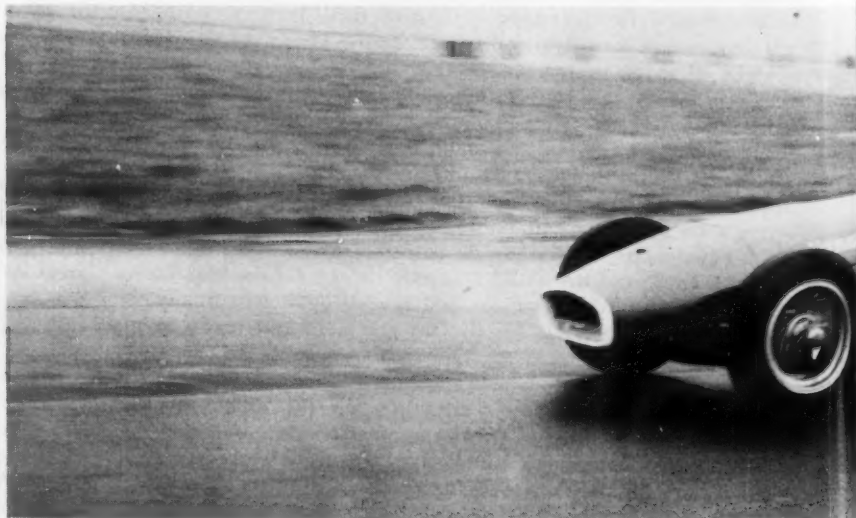


Patriotic but ambitious, Moss had to decide between British G.P. and World Championship.

As the house guest of Stirling Moss, I have recently been witness to the latest, and probably the toughest of a string of crucial periods which have marked this young Englishman's five-year rise to the position of contender for the Grand Prix Driving Championship of the World.

As number two driver on the 1955 Mercedes-Benz Champion G.P. team, Moss learned more about Grand Prix racing in one season than he could in five years of English competition. He not only learned a book of new tricks by driving behind his friend and lead driver Juan Fangio, but also learned to follow team orders and strategy as laid down by Alfred Neubauer, the wily, iron-fisted maker of champions. Stirling so pleased his team manager, the Mercedes factory and World Champion Fangio, that he was turned loose in the British Grand Prix at Aintree and proceeded to win the event.

It is interesting to note that all of the main rivals for the 1956 World Championship are good friends. Although the press has often suggested that Fangio, Hawthorn, Gonzales and Moss are personal enemies, they are actually good friends. After one publication implied that there was strife between Moss and Fangio in the Mercedes team, Fangio stated to the press, "We were the best of friends, there was no friction between us at all, despite what some people think." As for the Moss-Hawthorn feud, they are often seen together in London clubs, and although I have tried upon occasion to needle one or the other of them to "tell tales" about the other, they have always managed neatly to change the subject. Gonzales, the large Argentinian Ferrari driver, seems to be liked by all of the top



drivers. However, as each of these men drive to make money, and winning is the only way to make it, they are necessarily out to beat the others in competition. To this end, they have each gone out of their way to secure employment as "number one" drivers on different teams in 1956.

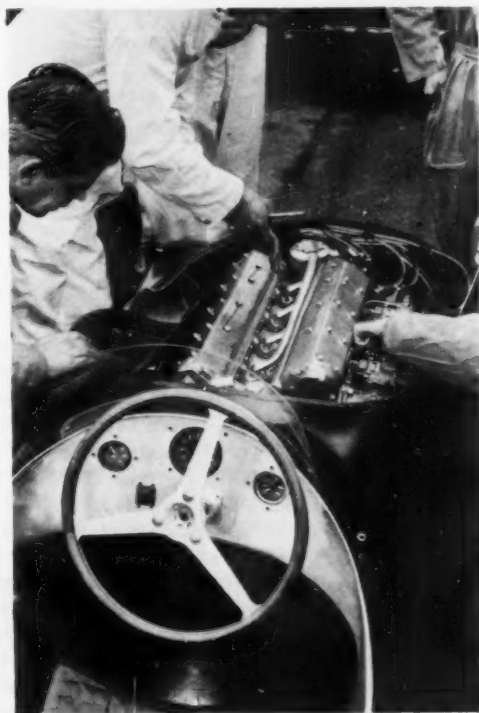
No driver can become World Champion as a number two driver in a team. It is the job of the number two man to deal with the opposition while the number one man drives to win, and the third car lays back to take over the job of either of the first two cars if anything goes wrong. You can't win points towards the championship that way.

With Mercedes in temporary retirement, Stirling found himself suddenly out of a job. The decision to withdraw from all racing came as a shock to the "Merc" drivers, and Stirling arrived back in England hoping for time to rest and figure out his next move. The rest never materialized because like an "overnight millionaire" his doorstep was filled with press representatives from various racing firms wanting to hire him for their teams.

Above this confusion rose the Union Jack, being waved by the manufacturers of England's three Grand Prix cars. Questioning the Moss loyalty to England is hitting his soft spot, because he is one of the most fervently loyal of the Queen's subjects. It was made pointedly clear that for Moss to win the World Championship in an English car would help the sagging British Industry as a whole. Alfred Owen announced that he would put up another \$600,000 for development of the Grand Prix B.R.M. if Moss signed, and intimated that he might not if Stirling didn't drive. Adding to the mounting pressure, the motoring press declared that in order to contest the existing World's Cham-



2½ litre four cylinder B.R.M. spun Moss around Oulton Park in 1 min. and 52.3 sec., bettering his private Maserati lap record of 1 min. and 53.2.



B.R.M. had a great deal of power through a wide range. After testing it at Oulton Park, Collins and Moss found extra weight added to front end improved the handling.



The Vanwall was run in the wet at Silverstone and proved to be the best handling of all British G.P. cars. Although Moss lapped in 1 min. 46.9 sec., he felt it lacked power.



B.R.M. slid and wiggled out of corners. Wet course was no help, but car lacked sharp handling.

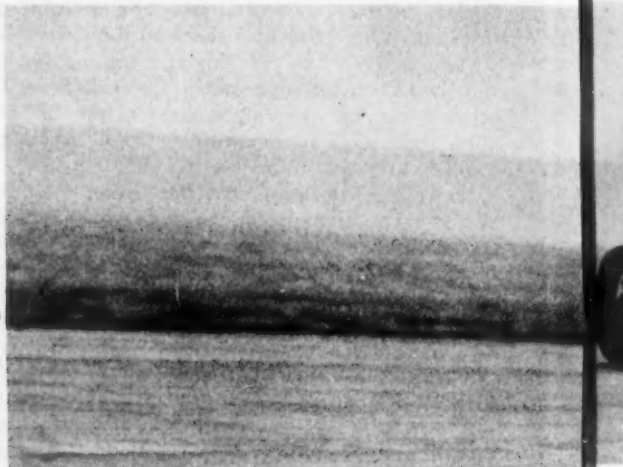
Collins in B.R.M. beat practice lap record at Silverstone; despite this he also signed with Maserati.

pion, Juan Fangio, Moss must make his all-out bid in 1956, while Fangio was still at his peak; otherwise neither he nor the world will ever know exactly how these two compare. After studying the Champion's driving methods at close hand for a full season of racing, Stirling feels that he can beat him. However, could he do this in an unseasoned car against the Champion in a competition-bred European car?

It has always been Stirling's prime ambition to win the World Championship in an English car, so led on by optimistic press accounts of the British G.P. potential, he began preparations for testing the three English machines. There were four test days, two of which I attended with Stirling. The first test was with the new 2½ litre four cylinder B.R.M. at Oulton Park, which is one of few twisting road-type circuits in England. Stirling chose this track as one which came the nearest to simulating European tracks, and one where he could compare the test against previous laps in his own private Grand Prix Maserati.

The first day was cold and wet, and the beautiful powerful looking B.R.M. began literally to whip around the circuit. There is something thrilling about listening to the sharp rap, crackle and roar of a powerful machine like this when it is lapping a completely deserted course, especially on a cold, damp, foggy afternoon. As the day went on it got wetter and wetter, and it was soon all too apparent that Stirling was working very hard to keep the roaring car on the track. It was lapping in a series of slides and wiggles, accompanied by undulating revs, indicating that the drive wheels were not gripping the surface. This situation, if in a race, would have been extremely dangerous to the B.R.M. and competing cars on the circuit.

We talked it over on the way home, and came to the conclusion that the slipping was due to the wet, and from the patches of autumn leaves which littered the track. There was no doubt but what the car had power to burn,



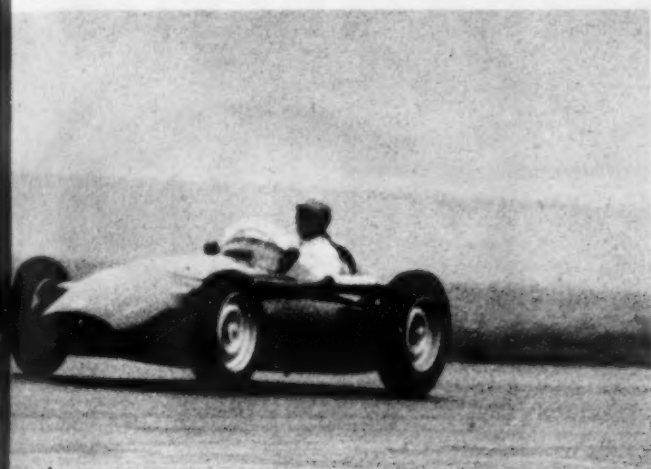
and Stirling said that the power was constant through a very wide range, which is necessary in Grand Prix racing. Another test was held at Oulton Park, where Stirling returned a lap in the B.R.M. of 1 minute and 52.3 seconds, bettering the course record set with his own G.P. Maserati of 1 minute and 53.2 seconds. He also lapped the course in the Vanwall G.P. car, and although he did not drive it flat-out, he was quite pleased with its handling qualities.

Shortly after this second test drive, Stirling and his friend Peter Collins flew to Modena, Italy, where they talked with the Maserati people, and tested some of Tony Parravano's new sport cars on the Modena circuit. Tony, a Los Angeles, California builder, has the largest private racing stable in the world, and it has been reported that he offered Stirling \$60,000 to drive sports cars for him in 1956. He didn't have much to say about the trip when he came back, but it was rather apparent that Maserati had made him a very good offer. This increased the pressure because Maserati had been good to Stirling, and they have worlds of Grand Prix experience behind them. This brought to mind that while it appeared that Britain might have a

Moss in B.R.M. talks to reporter. British public and motoring press dogged Moss' heels and sat on his doorstep awaiting his decision.



During "test day" at Silverstone Connaught handled better than B.R.M. but not as well as Vanwall, retiring early due to engine trouble.



chance to win with their cars, they were by no means proven, and it could easily turn out that Moss would be nothing more than a development driver. Then too, even if he were to try to prove the English car, there are no shake-down circuits in England which even approach actual European racing conditions.

The next test was at Silverstone, and I was treated to a rare Moss driving lesson as passenger in his 220 Mercedes. As usual when he starts somewhere, he goes—and we literally "threaded the needle's eye" through traffic between London and the track. The weather was nippy, and while it was not actually sprinkling, the track was wet and stayed that way throughout the day. It turned out to be an official English Grand Prix "test day" at Silverstone, as members of the motoring press, newsreel, and television people crowded around the B.R.M., Vanwall and Connaught cars and equipment. It was a supreme effort by the makers to convince Moss and Peter Collins that Britain had the cars which would win against the world. The air was heavy with tension, and after the newsreel and television people had their shots, Moss quickly jumped into a

Connaught and took off. The rest of the day was like a combination three-ring circus and marathon, with Moss, Collins and the B.R.M. test driver, Ron Flockart, jumping in and out of cars. As each car came in the driver would report on the behavior while mechanics swarmed over the car, and Dunlop tire officials checked tread wear and measured the temperature and air pressures of their new racing tires.

The Vanwall was by far the easiest car to handle, especially in the wet, but seemed to be heavy, and lacked power. The B.R.M. had power to burn—and in a very wide range, but handled badly, lifting in the front at high speed, and snaking dangerously coming out of the turns. The Connaught handled better than the B.R.M., but not as well as the Vanwall, and retired due to engine trouble. With the three drivers taking turns, the B.R.M. was driven well in excess of the usual Grand Prix distance of around three hundred miles.

Stirling's best time in the Vanwall was 1 minute and 46.9. In the Connaught he did 1 minute and 50.5 seconds, and with the B.R.M. 1 minute and 50.8 seconds. The immediate problem seemed to center on some method of correcting the faulty weight distribution in the B.R.M. to utilize the tremendous potential power available. The next day, upon Stirling's advice, sixty pounds of iron was taped to the front suspension, and Collins took the car back to Silverstone for a trial. That evening B.R.M.'s chief engineer, Peter Berthon, phoned Stirling that with the new weight distribution Peter Collins had cut his time to 1 minute and 45.4 seconds, which beat the Silverstone practise record of 1 minute and 48 seconds held by Hawthorn in a Vanwall, and Salvadori in a Maserati!

The next day Stirling flew up to the circuit and lapped in the rain, twice breaking two minutes, which is supposed to be the first time it has been done in the wet. But when

(Continued on page 61)

In just one season the fabulous Mercedes-Benz 300SLR managed to mop up virtually every important sports car race in the world.

Here, in an SCI exclusive, are the full details and driver's report on

GERMANY'S



FOR years the Italian sports cars had dominated the international racing picture, with Jaguar occasionally upsetting the scheme. Then Mercedes uncorked their 300SLR sports car, and the scene changed with stunning impact.

Realizing that wins in international competition would produce prestige for German products on the potential world market, the Daimler-Benz organization invested a bundle of cash, in the neighborhood of \$2,500,000, and the whole of their bountiful engineering brains in designing, building and racing the finest machines the world has ever seen in competition. Suddenly all other makes were "also rans," and the Unterturkheim plant in Stuttgart lost no time in announcing to the world the latest Mercedes wins.

The blitz was headed by Juan Manuel Fangio, who ran away with the World Championship Grand Prix driving title in the Mercedes G.P. cars, and 26 year-old Stirling

Moss, the youthful British driver who shadowed the great Fangio in Grand Prix events, and who whipped all comers in the sports car competitions with a 300SLR.

Every sports car fan in the world has wondered what made this fabulous car go. Opportunities to roadtest a Mercedes 300SLR are nonexistent, the cars have been retired and are not for sale. However, after months of postal bombardment, the factory sent to SCI a set of special pre-release SLR specifications, and with the aid of Stirling Moss we have put together the first full report of this latest Mercedes masterpiece.

When I showed Stirling the "specs" he exclaimed "God, it's fantastic!" Several minutes later, as he read on, he murmured "Oh what a wonderful car" and "Thank God it's not for sale, I'd hate to have to run against it!" From the man who drove the machine all last season, blasting the records of Europe's major road races, this gives some idea of

Mercedes 300 SLR cockpit is clean and simple; every item is laid out for the driver's convenience alone. Four knobs below the dash control injectors which squirt thin oil into break drums to prevent seizing or sticking after repeated application.



By BOB ROLOFSON

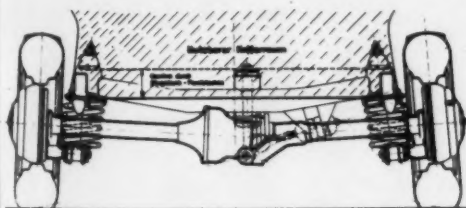
SILVER SCREAMERS

how closely guarded these figures have been. He knew very little about the technical aspects of the car, but knows better than anyone in the world how it handles and performs in the thick of battle.

One of the most amazing aspects of the SLR is the engine, an item guaranteed to leave armchair engineers the world over scratching their heads and choking on their own words. This potent plant is of a design considered dead and buried with the in-line Buick — a straight eight, theoretically with all of the disadvantages of the design coupled to the small displacement limit of 181.9 cubic inches. Yet this "obsolete" engine slams out almost two brake horsepower per cubic inch, a rating scarcely approached by other manufacturers with the help of a blower

and almost unbelievable in an unblown machine. Further, its peaking speed, 7400 rpm, which was constantly reached, and used for considerable periods, would tear any other straight-eight to pieces from sheer crank whip alone. One can hardly blame the manufacturer for boasting that the car had never dropped out or lost a race through mechanical failure.

How can such a mill stand such treatment? The answer lies only partially in the square bore and stroke ratio of 3-1/16 inches for each dimension and the 10 main bearing crank. A good part of the answer lies in the way these engines are put together. The engine assembly room at the Unterturkheim plant is held at a constant temperature, winter and summer. No component is matched to another



Drawing shows the low pivot point rear axle set-up used on all the Mercedes sports cars. Design gives more roadability than did the previously used type.



Early version of the SLR lacked the air brake, carried complete wind screening which was later discarded. Lines of car are unmistakably Mercedes.

SPECIFICATIONS 300 SLR

GENERAL

List price	not for sale
Wheelbase.....	93-5/16 inches
Tread: front.....	52-3/8 inches
Tread: rear.....	54-5/16 inches
Tire size.....	front: 6.00 x 16
	rear: 7.00 x 16
Dry weight.....	1940 pounds
Curb weight.....	2491.2 pounds
Weight distribution.....	front: 41.5%
	rear: 58.5%
Over-all length.....	171-5/16 inches
Over-all width.....	68-7/8 inches
Over-all height.....	43-1/2 inches

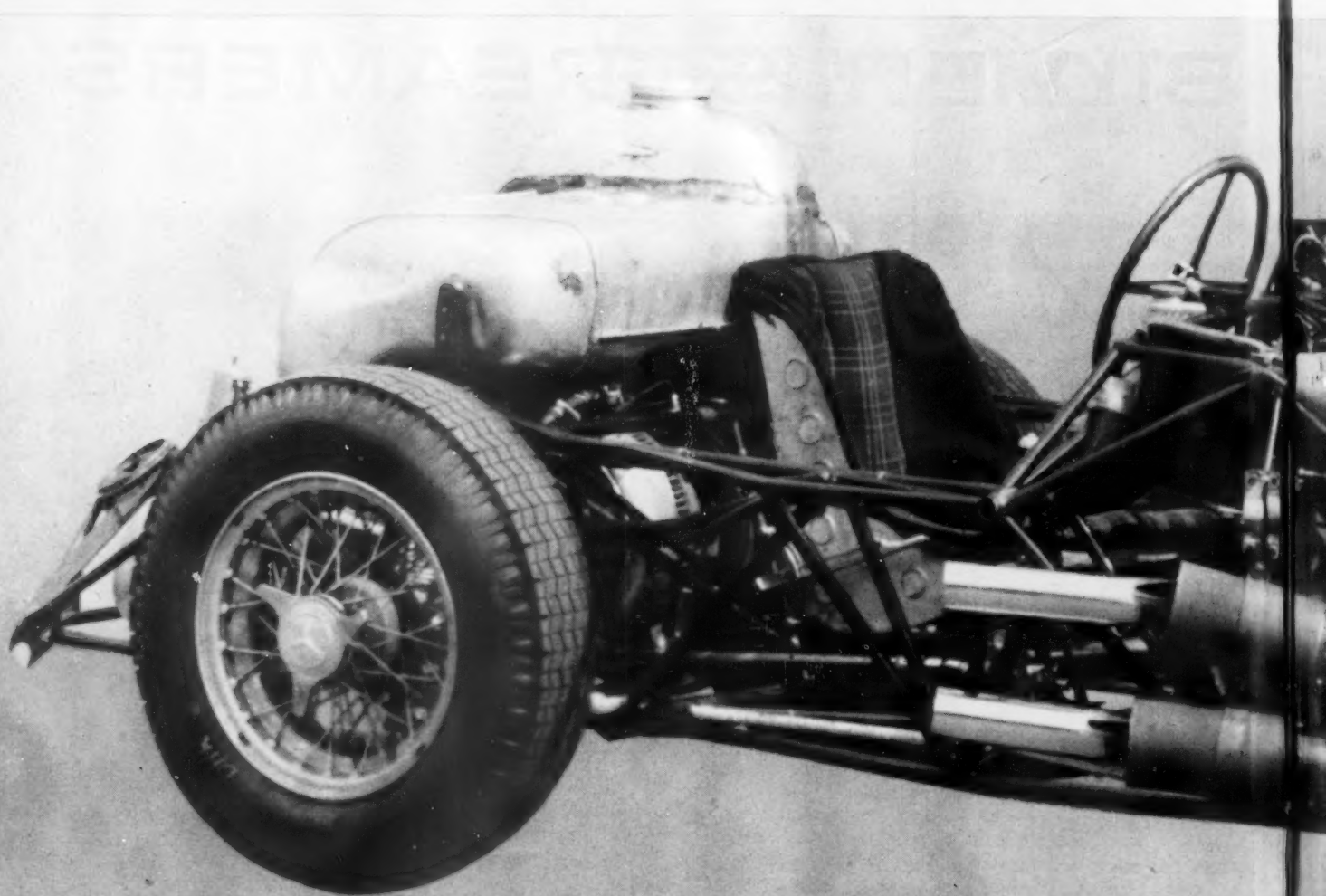
ENGINE

Cylinders.....	8 cylinders in-line
Valves.....	Desmodromic valve timing

Cylinder bore.....	3-1/16 inches
Stroke.....	3-1/16 inches
Displacement.....	181.99 cubic inches
Compression ratio.....	1:9
Maximum b.h.p.....	345 h.p. (SAE) at 7400 r.p.m.
Maximum torque.....	217 ft. lbs. at 5620 r.p.m.
No. of main bearings.....	10
Carburetion.....	4 stroke, gasoline injection
Ignition.....	dual
Lubrication.....	Dry sump
Fuel consumption.....	30 litres per 100 km (Le Mans)

TRANSMISSION

No. of forward speeds.....	Daimler-Benz mechanical 5 speed
No. of speeds.....	
synchromesh.....	2nd through 5th gear
Clutch.....	Daimler-Benz single dry disk
Type gears.....	Spur gears, involute



POWERHOUSE ON WHEELS
the Mercedes-Benz 300 SLR chassis

SPECIFICATIONS .300 SLR

Standard ratios..... 1:3.963-0.2524 (Le Mans)
 Reduction in engine
 between crank-
 shaft and flywheel..... 1:1.0606

PERFORMANCE

Over-all ratios (top speeds)
 5th gear 1:3.5..... 180.2 m.p.h. (Le Mans)
 4th gear 1:4.513..... 139.9 m.p.h.
 3rd gear 1:6.004..... 104 m.p.h.
 2nd gear 1:8.123..... 77 m.p.h.
 1st gear 1:10.02..... 62 m.p.h.

CHASSIS

Frame..... Torsionally-rigid, three dimensional (space frame) tubular steel.
 Front suspension..... Daimler-Benz independent, torsion-bar springing with F&S shocks.

Rear suspension..... Daimler-Benz swing-axle with low-placed pivot for axle and shafts. Torsion-bar springing with S&F shocks.

Brakes..... Hydraulic 4-wheel brakes with "Teves" booster, compound drums and parallel shoes. All mounted inboard.

Fuel tank..... 44 gallons

Electrical system..... 12 volts

Wheels..... Light metal, with drop center rim
 5.50 x 16

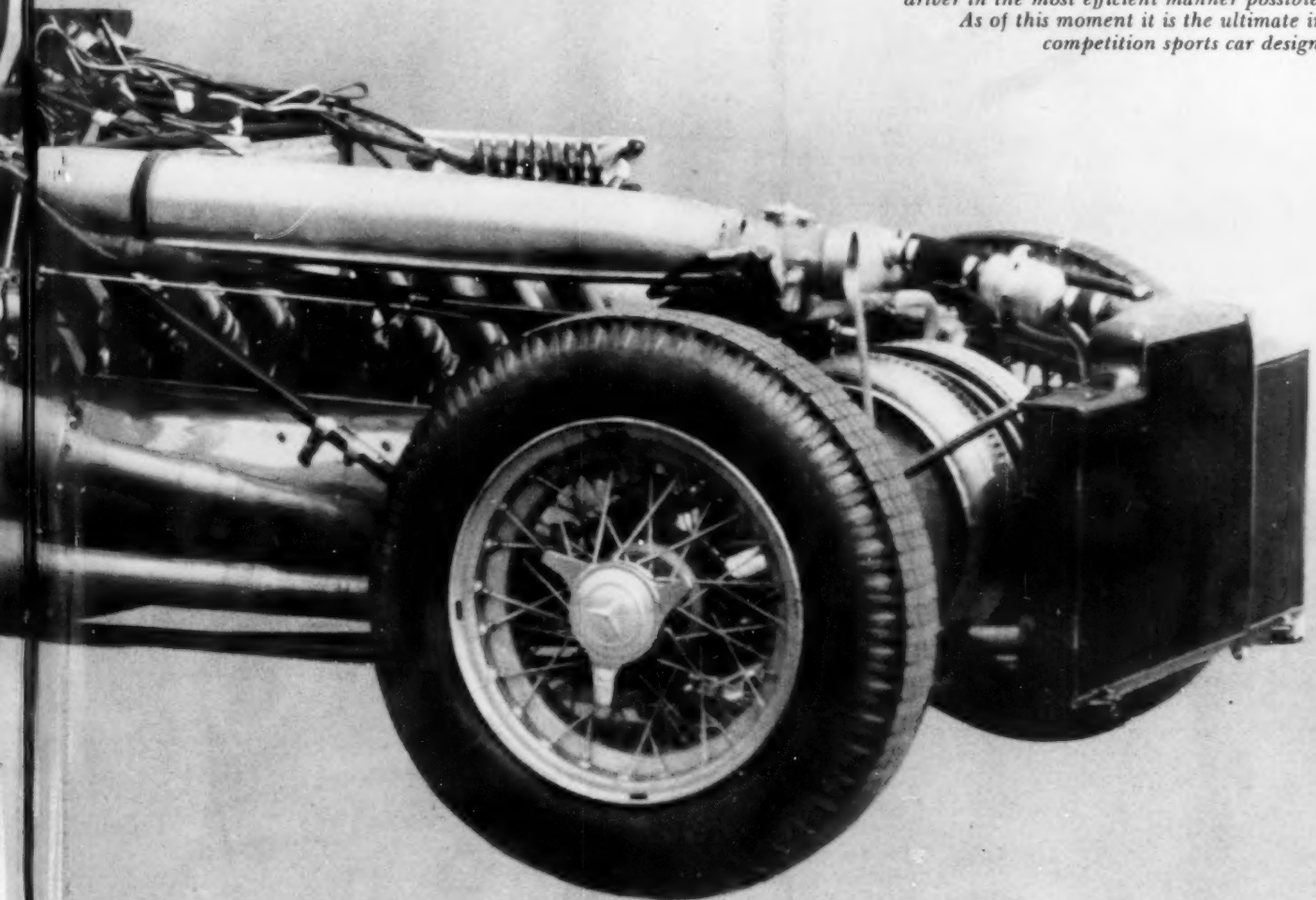
Body..... Open streamlined light metal, two seater.

Top speed..... 180.2 m.p.h. (Le Mans)

AIR BRAKES

(Data included in text)

Under the sleek aluminum skin the SLR is primarily a vehicle for transporting the fantastically potent engine and a driver in the most efficient manner possible. As of this moment it is the ultimate in competition sports car design.



the Mercedes-Benz 300 SLR

(continued)

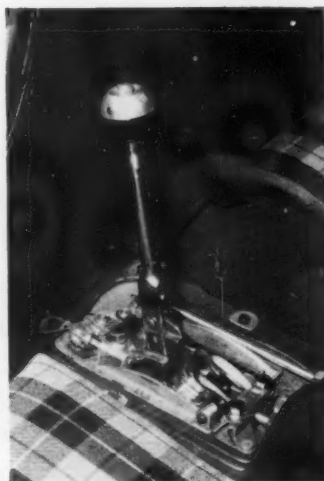
until the temperature of each and every micro-finished part is equalized. In storing, every finished part is carefully wrapped in soft, oily flannel to prevent even the smallest scratch. In short, nothing at Mercedes is left to chance. Assembly methods resemble those on a fine Swiss watch. It is this slavish devotion to the smallest detail which makes the machine so nearly unbeatable.

Another factor is the engine's seemingly inexhaustible ability to wind up is the desmodromic valve layout in which the valves are not only opened but closed by mechanical means at exactly the right time without depending on springs and completely eliminating valve bounce or float. The result is fantastic volumetric efficiency at any speed.

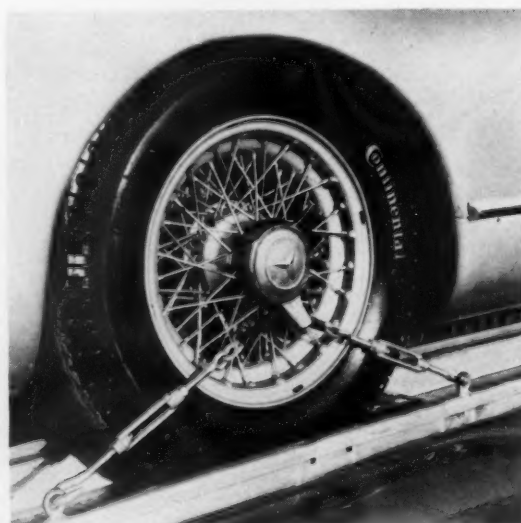
Packed under the hood, along with the engine, are the enormous inboard front brakes which Mercedes perfected after Lancia (who pioneered them in 1953 sports cars) had abandoned them in their G.P. and sports cars. With the engine and injection equipment, inboard brakes, coolers, steering, and torsion-bar suspension all packed like a three dimensional blue-print under the low, silver hood, the German engineers have created a new high in totally functional construction, leaving absolutely no waste space. As if this thorough engineering job were not enough, each and every part has been finely machined to the point where maximum strength, per ounce of weight, makes it unnecessary to cut or drill holes for lightness!

Various motoring publications have periodically referred to the 300SLR as nothing more than a W196 Grand Prix car in "thin disguise." This statement ruffles the famed Moss calm and he defends the sports car by maintaining that although the general construction and layout follows the Grand Prix car, the SLR is definitely a breed alone. He points out that the 132-pound frame (20% lighter than the 300SL) is a development of the space-type frame of the SL, using exceptionally small diameter tubing. It handles differently from the G.P. car, and was (for Stirling) more difficult to drive. One major difference was the shifting of balance caused by loss of weight in the rear as the fuel was consumed. In the G.P. car it was possible to adjust the angle of the rear wheels from the cockpit, maintaining the same rear-end characteristics throughout the race.

The car was at its best in open road racing, Moss says, and riding qualities were properly stiff for good handling but "much softer and more comfortable than I had expected." Ride, roadability and handling qualities are difficult to measure specifically, but in his estimation the SLR riding qualities are good despite the fifty-odd pounds of tire pressure required in competition. The car corners very flat, is extremely responsive and settles down to hug the road in straight line driving. Cruising speed can be maintained anywhere between 80 and 160, depending on road conditions. In the wet the car is excellent to a point, "But when it goes, you notice its size." The booster actuated, hydraulic, inboard brakes with their compound drums and parallel shoes are extremely efficient and stop the car



Hefty gear shift lever works through double-H gate in six positions including a reverse which, with low, is locked out in normal operations.



Wire wheels used on Mercedes make others look like rolling gear taken from a tricycle. Wheels are triple-spoked, with tremendous lateral strength. Note deep alloy rims.

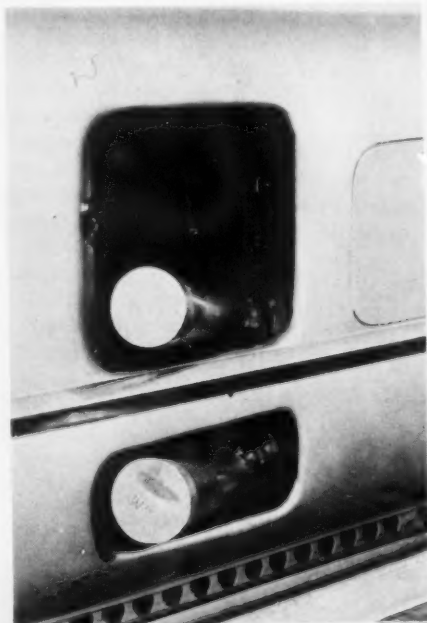


In the Irish Tourist Trophy, the SLR's scored a 1-2-3 victory over the D Type Jaguar on its own home grounds. Here Fangio charges through a tight turn ahead of Mike Hawthorne.



Despite several severe contacts with immovable objects, Moss and Collins kept the fabulous Mercedes going on to win the rugged 1955 Targa Florio.

Side mounted exhausts protrude like a pair of gun muzzles. Screaming note makes conversation impossible in cockpit when underway.

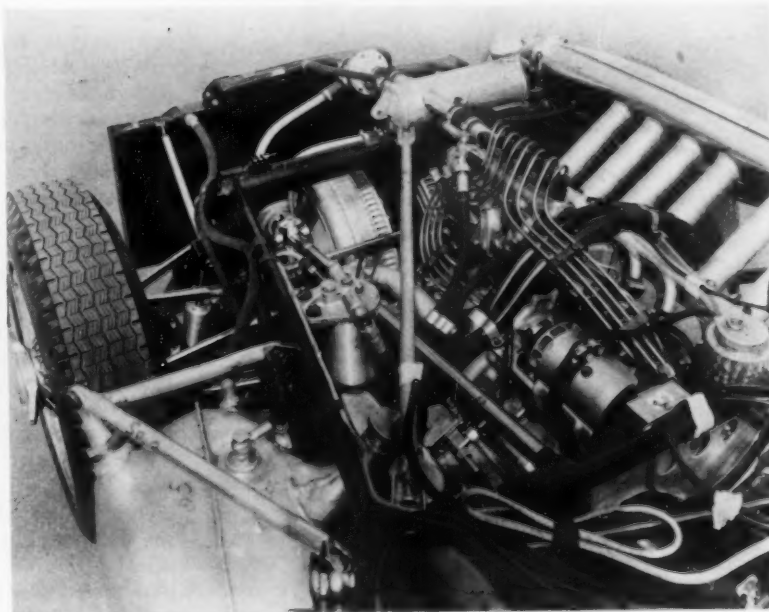


straight, with little or no "fish-tailing." The only time he experienced brake fade was in Argentina, where it was so hot that drivers, brakes and engines were ALL "fading!"

At this point it is interesting to note that the Stuttgart engineers discarded the tried and proven De Dion rear axle, which Daimler-Benz pioneered on their competition cars in 1937. Instead, they used the racing machines to "prove" a new type of swing axle, which they were considering for their production cars. Daimler-Benz has been using swing axles in production cars since 1930, and welcomed the opportunity to try their latest innovation. The new system embodies a low-placed pivot for axle and shaft, providing slight, easily controllable, oversteer, which permitted maximum speeds in turns. Combined with the swing axle advantage of reducing unsprung weight, this new feature improved the car's road-holding, riding qualities, and increased stability. Stirling is convinced that it is the best handling rear suspension in the business and backs his bet by wheeling his 220 Mercedes-Benz around the English countryside — full bore!

With all equipment in good shape, the weakest link in the chain of possible failures in race slike the Mille Miglia, is the endurance of the driver. To this end, the Daimler-Benz organization goes out of its way to afford the driver

(Continued on page 64)



Here is the powerhouse. Out of 181.9 cubic inches comes 345 bhp, an almost unbelievable rating of nearly two horsepower per cubic inch. Note the huge inboard brakes between engine and radiator.

Duel

in the desert

By JIM MOURNING

APERSISTENT, rain-tinged desert wind sliced across the dusk shrouded Palm Springs airport, its steady whistle over-ridden by the howl of exhausts. Tail-lights blinked brightly and glowing bonfires dotted the corners as the shivering throng of 10,000 waited, unwilling to leave until the last car had roared across the finish line. Out on the dark, water-slicked 2.2-mile circuit, a Maserati and a Ferrari clashed in the most vicious duel that West Coast racing fans had ever seen.

From the beginning, it had all the makings of a classic. Ernie McAfee, the coast's giant-killer during the past season, was pitting Bill Doheny's 3-litre Ferrari against such international lights as the bespectacled, 23-year-old Masten Gregory in the Scuderia Parravano 3-litre Maserati and Carroll Shelby in Charles Hornburg's D-Jaguar. Among the American-bred products, Bill Murphy's Buick-powered Kurtis was given the best chance of meeting the imported machinery on relatively equal terms.

When Al Torres dropped the green flag, it looked as though Murphy was going to do it. As the cars blasted away, it was McAfee's Ferrari first with the Buick-Kurtis running only inches behind. But by the tenth lap, the pattern of the race began to take form as Gregory moved the Maserati into second and began slugging it out with McAfee.

For lap after vicious lap, the pair clawed valiantly for an advantage, but none could be gained and they frequently screamed along the front straight side by side. On the 36th lap, with darkness beginning to settle over the course, McAfee managed to pull his flying blue Ferrari into the lead for the first time in 21 laps. But his advantage was short lived as Gregory fought back brilliantly and overhauled the screaming Ferrari on the back straight.

Realizing the race was running into its final moments, McAfee charged back desperately, hacking out precious inches as they wheeled through the hairpins on the end of the back straight. As the cars whipped out of the final turn side by side on the last lap, the screams of excited fans punctuated the growing darkness. The question in everybody's mind was whether McAfee could offset the Maserati's apparently better acceleration as they bombed out of the hairpin. Screaming up the final straight, the Maserati began



Ken Miles and crew wheel the 1500 Maserati onto the line at the start of the under-1500 main. As might be expected, Miles won.



One of the most closely fought duels ever seen on the West Coast was staged by McAfee and Gregory. Gregory's Maserati had the edge.

Three litre Maserati, wheeled by Gregory, stuck like glue on the wet blacktop, barely edging out McAfee's Ferrari Monza at the finish line.

Photograph by Lester Nehamkin



Production D-type Jaguar made its western debut at Palm Springs. Suspension problems forced it out of the over-1500 main event.

to edge ahead. First one inch, then another, finally whipping across the finish line 1/500th of a second in front, snapping Ferrari's domination of Palm Springs after four races.

A minute behind, in a surprising third, was the apparently underrated Troutman-Barnes Mercury Special which Chuck Daigh had nipped past Murphy's Buick-Kurtis on the 22nd lap.

With a blistering and brilliantly run race finished, the drivers could not bring themselves to mutual congratulations. Unseen by many of the spectators was the rugged "nerfing" contest that had developed in the heat of competition. Both of the Italian speedsters bore the scars of contact and the story told itself, although neither driver was willing to point an accusing finger.

If the slender, balding McAfee went down in defeat, it was not an ignominious one. For during the qualifying races on Saturday he not only whipped Gregory in the modified 1500-3000 cc race, but came back to score readily in the over 3000 cc clash.

Highlight of Saturday's action came when Shelby, driving the Scuderia Parravano 4.9 Ferrari, hit the bottled pack on the first lap of the final event and struck another car, completely hurdled another, skidded through the infield and across the track on the far side, coming to rest against the fencing. Four cars were severely damaged in the melee, the Ferrari being smashed beyond repair, but no drivers were hurt.

The race for cars under 1500 cc modified was dull, notable mostly for the soundness with which the debuting 1½-litre Maserati driven by Ken Miles trounced the Porsche Spyders. Miles, who turned his famous "Flying Shingle" MG Special over to Harry Hanford in order to wheel a Scuderia Parravano mount, moved into the lead in the middle of the first lap and steadily increased it. He finished 40 seconds ahead of Johnny Porter in a Porsche Spyder with Hanford bringing Miles' car in for a third.

Opening two events on the day's card were consolation dashes for large and small cars, Rex Huddleston taking one in a Lotus Mk IX and Alex Budurin copping the other behind the wheel of his Kurtis-Ford. #

Photographs by Dave Iwerks

RESULTS

UNDER 1500 cc MAIN:

Overall:

KEN MILES, Maserati;
JOHN PORTER, Porsche 550;
HARRY HANFORD, Miles R2 MG;
JEAN KUNSTLE, Porsche 550;
MARION PLAYAN, Playan Special;
ED FREUTEL, Lotus Mk VI;
DALE JOHNSON, Porsche Speedster;
ED BARKER, Porsche Super Speedster;
NORRIS MILLER, MG Special;
RON HUDSON, Porsche Spyder

CLASS G:

ED FREUTEL, Lotus;
JAMES ORR, Devin Panhard;
GEO. SCHRILLREFF, Dyna Panhard

CLASS H:

DR. PAUL WINTERS, Halliday Renault;
STAN MULLIN, DB Panhard;
JACK DUFF, Panhard Special

LADIES' EVENT:

PAT SAWYER, TR-2;
JANE WELLS, Austin-Healey 100;
ALVERTA SISK, Jaguar;
MAXINE FAIN, TR-2;
MARY BISHOP, TR-2

OVER 1500 cc MAIN:

Overall:

MASTEN GREGORY, Maserati;
ERNIE McAFEE, Ferrari Monza;
CHUCK DAIGH, Troutman-Barnes;
BILL MURPHY, Kurtis-Buick;
DICK MORGENSEN, Morgensen Special;
FRED WOODWARD, Jaguar Special;
KEN MILES, 1½ litre Maserati;
RUDY CLEYE, Mercedes;
ED KRETZ, TR-2;
CARLYLE BLACKWELL, C-Jaguar

CLASS B:

BILL MURPHY, Kurtis-Buick

CLASS C:

CHUCK DAIGH, Troutman-Barnes;

CLASS D:

MASTEN GREGORY, Maserati

CLASS E:

BOB OKER, Morgan

CLASS F:

KEN MILES, Maserati

CLASS G:

FRANK MONISE, Lotus Mk VI

SCI tests the new Karmann Ghia Volkswagen

By KARL LUDVIGSEN



Interior is luxurious and roomy compared to the standard model.

New VW has the looks and handling qualities of a sports car but not the speed nor the acceleration characteristics. Top speed: 69 mph.



THE "word" on the Volkswagen has long been: "It's a great car, if you don't mind the way it looks." Even the most devoted salesman will admit that the standard car doesn't exactly appeal to the womenfolk. No one has been more aware of this, of course, than the manufacturer, and a calculated step is being taken to relieve the situation. Surprisingly, the proposed solution only seems to have made matters more critical.

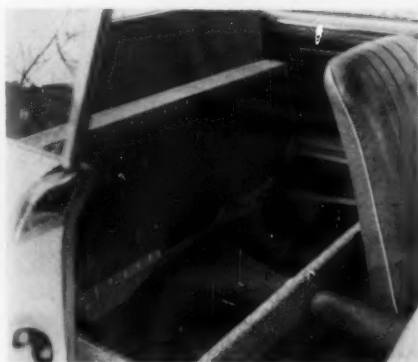
Wolfsburg executives felt that the demands of the minor element of aesthetically-minded customers could be satisfied by a specially-built body on the standard VW chassis, so the firm of Ghia was engaged to design an appropriate new shell, which would then be executed by the Wilhelm Karmann G.m.b.H. of Osnabruck. Karmann has long been responsible for the excellent VW convertible body, and it must be emphasized that their much smaller firm has nothing like the facilities of the Wolfsburg plant, there being no intention of flooding the market with Ghia-designed coupes.

In those areas where the Karmann-Ghia cars have been exhibited, they have caused much consternation among the

dealers. It seems that it is difficult to interest a customer in a standard VW while the coupe is standing nearby, and unfortunately production plans are not at this writing sufficiently finalized to allow any delivery dates to be set. Many frustrated retailers have removed the cars from their windows, to avoid the issue entirely. What is the reason for this fantastic demand? Has the sports car clan taken to this new model, or have VWs succeeded in appealing to a broader market? After driving the car and querying dealers, I think VWs have exactly achieved their target. Most of the advance orders now on the books were placed by non-enthusiasts, simply interested in travelling in Turin style as well as with Volkswagen economy and durability. This is, in fact, what they get; no more, no less.

Acquiring this style is not necessarily cheap, the coupe listing in New York for \$870 more than the \$1525 of the standard sedan. Virtually all come through with a radio and whitewalls, which brings the tab up \$100 to \$2495, \$500 more than similarly equipped VW convertible. For these big pennies the sports car fan can buy an MGA or a stripped Triumph TR2, but a more comparable car might be the

Photographs by Don Typond



The rear seat of the new car is versatile. Room is available underneath for carrying tools and other small items. The seat itself is large enough for adults on short trips. Folded flat as in a station wagon, room is provided for luggage or sleeping children.



new Sunbeam Rapier, which is expected to retail, with overdrive, for \$2435 in New York. There are few, if any, cars right on the Karmann-Ghia spot, and it seems to be unique in conception.

The preceding paragraphs have in part answered the "sport car?" question, but it might be interesting to leave the matter open while we look over this svelte version of our old friend. Whether or not it is a good thing, the Karmann-Ghia *looks* like a sports car. Its clean lines need no chrome emphasis, and the slim top is very well done. Construction is all-steel, with the fenders firmly welded to the main body. The Karmann shell is bolted to a slightly wider than standard Volkswagen backbone-reinforced platform frame. The front and rear deck lids fit neatly, and, when opened by interior pull-knobs, they are supported by counterbalancing springs. One middle-sized suitcase would go in the front "trunk," and there is additional room in the nose bulge forward of the vertically-placed spare tire. Accessory makers will probably soon supply a lining to make this space usable without interfering with the horns placed there.

The engine compartment lid is wide and deep, but as a result the dropped rear portion of the lid gets in the way during routine checks. This was aggravated by weak balance springs on this car. Neatly trimmed walls surround the otherwise accessible engine, and the battery has been moved from beneath the rear seat to a quick-release mounting on the right of the rear compartment. The bumpers are handsome and seemingly sturdy, with nicely finished overriders, but as usual they are much too low for U. S. use.

Sports car handling seems to have been another objective of the coupe designers, as evidenced by a couple of significant chassis changes. First, and most obvious, a torsion anti-roll bar half an inch in diameter connects the lower trailing arms through rubber mountings. Such a bar increases the resistance to roll of the front suspension, and thus decreases the cornering power at that end in relation to the rear. Similar tactics, carried to extremes, have been successfully used on English Formula III and sports cars to produce understeer in vehicles with swing axle rear suspension, and they should have a similar, though lesser, effect on the Karmann-Ghia. Secondly, and more subtle, the

Abrupt drop in rear deck lid interferes slightly with routine checks but not overly so. Lid is held open by tension hinges.





High "hood" line make for slightly less forward visibility than is the case with slant-nosed Porsche or standard VW.



Clean lines of the car indicate the Ghia design influence on otherwise strictly Teutonic Volkswagen.



As in both VW and Porsche, the forward compartment houses spare tire and fuel tank with little spare room.

recommended rear tire pressure is up three pounds from standard VW to 24 psi, while the front remains stock at 17 psi. Increase in tire pressure almost invariably brings an increase in cornering power, so this counts as another measure to make the notorious VW back end stick in a turn as long as the front end. Purely an added dividend is the much lower center of gravity of the new car, which, with the same suspension, should reduce the roll moment and thus, the resulting roll angle.

Keeping these changes in mind, I was keen to see how the coupe would corner, so I headed out to the first test area with Shelly Spindel, the enthusiastic head man of progressive Volkswagen of Brooklyn, Inc. Testing was done in a cold, stiff, wind, which severely tested the car's tracking ability, and found it wanting. On a straightaway under these conditions the Karmann-Ghia is very jumpy, and requires a lot of driver attention. The steering itself is not quite free of

PERFORMANCE

Test Conditions:

30°F, strong side wind, dry concrete surface at sea level.

Speeds in Gears:

true (car) mph

1st19 (17)

2nd38 (37)

3rd57 (59)

4th69 (72)

Best run: 69

Acceleration:

0-30..... 8.8 sec

0-50.....22.7 sec

0-60.....35.5 sec

0-60.....36.6 sec

40-60.....26.1 sec

Standing ¼ mile .23.8 sec

Speed at end of quarter.....53 mph

Gears used:

1st, 2nd

1st, 2nd, 3rd

1st, 2nd, 3rd

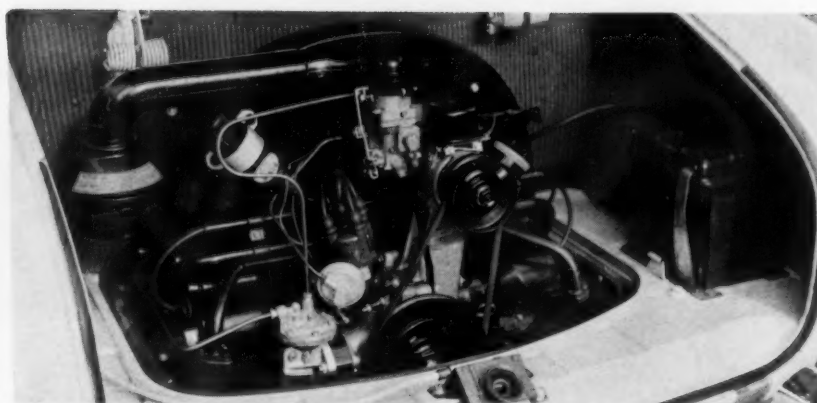
1st, 2nd, 3rd, 4th

4th

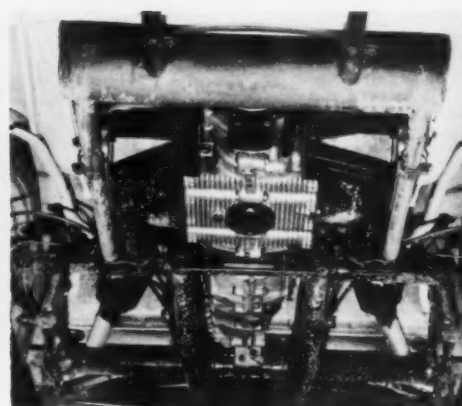
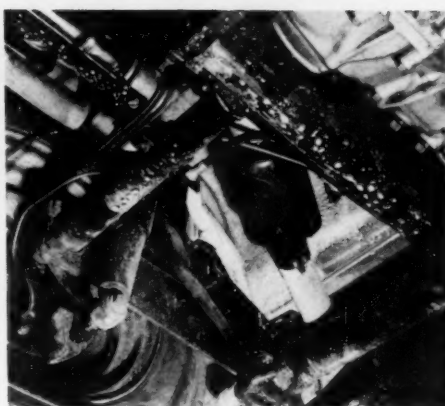
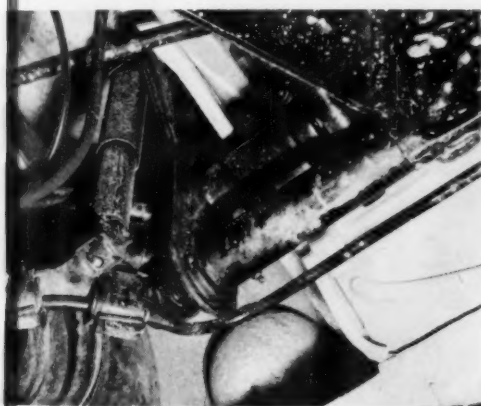
1st, 2nd, 3rd

play, and a moderate caster action and freedom from road reactions give it a rather "dead" feeling. Once turned, though, it responds quickly, with two and three quarters turns from lock to lock, and it is agreeably light at all times.

When the coupe is being cornered fairly hard, with recommended tire pressures, the initial turn of the wheel produces a marked sideways lurch, indicative of tire roll not unfamiliar to VW owners. After the lurch, matters stabilize, and the coupe vindicates its design by being a perfect neutral steerer. There is some car roll and tire noise, but it will track nicely through a bend at increasing speeds until the rear end finally begins to pop out and demand steering



Only change in the engine is the use of the Transporter air cleaner layout and a #195 air correction jet. Battery has been moved from rear seat to engine compartment.



Suspension improvements have been made to increase the road holding. The main change is the use of a torsion anti-roll bar to connect the front trailing arms (left). The rear suspension (center) is similar to standard VW. Frame is beefed up (right).

correction.

As usual, I then tried the car with pressures increased all around by six pounds. With this help, it handled very well indeed. Roll was reduced and the tires were dead quiet, the Karmann-Ghia slicing neatly around on a neutral line. Rather higher speeds were also obtainable before the antics at the back required attention, and there was an additional gain in straight line stability. Unexpectedly, the higher pressures didn't seem to affect the ride much, the all-independent Volkswagen chassis seeming to depend more on suspension than tires. The short wheelbase produces a certain amount of pitch, and some bumps can be felt, but the ride is still better than that of any comparable car, except, perhaps, the Porsche.

Yes, the Karmann-Ghia VW looks and handles like a sports car, and like a very expensive one at that. But how about the rest of the story; i.e., does it go? First, let's see if it should. Ready for shipping, the standard Volkswagen weighs in at 1565 pounds, while the coupe is more than 200 pounds heavier at 1786. As tested, with two up and fuel aboard, the total would come to about 2150 pounds. No skimping there! Wisely, I think, VW have been adamant in their refusal to risk reliability by hopping up the engine in this car. The only modifications for the coupe have been the hanging oil bath air cleaner and elbow pipe as long

(Continued on page 62)

SPECIFICATIONS

Karmann-Ghia Volkswagen Coupe

ENGINE:

Cylinders	4, flat-opposed
Bore & Stroke	77 mm x 64 mm (3.03 in x 2.52 in)
Displacement	1192 cc (72.74 cu in)
Compression ratio	6.6
Max. Horsepower	36 bhp @ 3700 rpm
Max. Torque	45 lb ft @ 2000 rpm
Max. b.m.e.p.	74 psi

CHASSIS:

Wheelbase	94.5 in
Front track	51 in
Rear track	49.2 in
Dry weight	1786 lbs
Test weight	2150 lbs
Turns lock to lock	2.75
Turning circle	36 ft
Overall ratios	
4th	3.61
3rd	5.42
2nd	8.27
1st	15.85
Rev.	20.35
Tire size	5.60 x 15
Brake lining area	80.6 sq in
Fuel capacity	10.5 gal

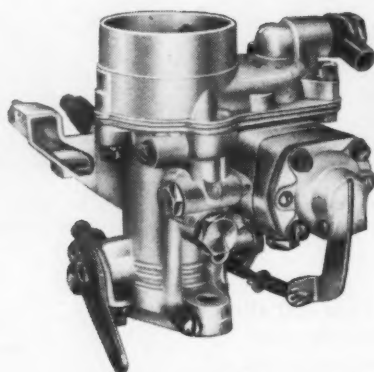
*One tiny scrap of dirt the size of
a shred of tobacco can cause all sorts of trouble.
Here is how to remove it from . . .*

the Solex carburetor

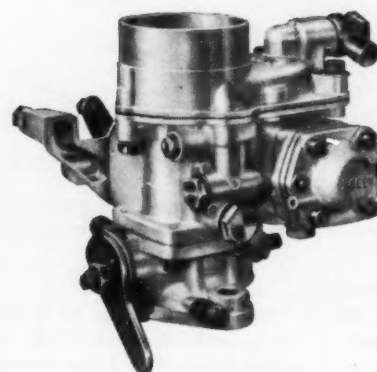
SCI Tune-up feature by ROBERT LEE BEHME



Type 32 PBI



Type 32 PBIC



Type 32 BIP

CLEANING and tuning the Solex carburetor is not only a help to a smooth, efficient engine, but properly tuned it can improve gas consumption as well. Although there are several models of Solex in use on such varied imports as Singer, Volkswagen, Porsche, Mercedes, and Borgward plus special equipment for the M.G., Renault, Bentley, Jaguar and many others, the project is as easy as any a backyard mechanic could hope to find. All that is required are a few wrenches, a screwdriver and time.

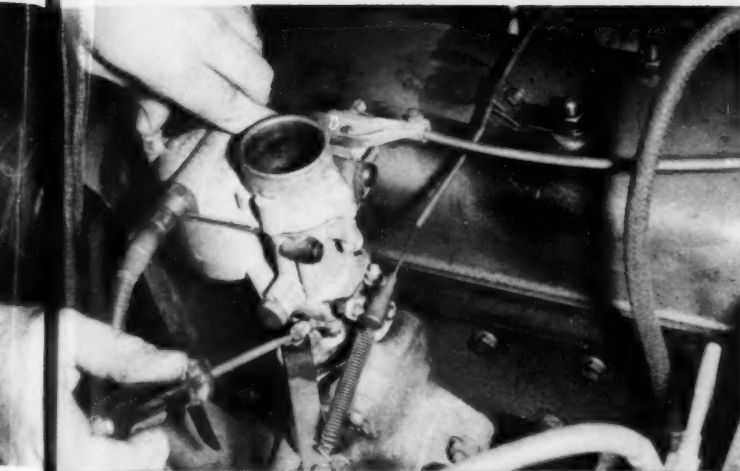
If your car has been running for several months, performance may be improved or correction of the mixture and idle adjustments as well as by cleaning the jets and needle. Technical knowledge is not necessary for these jobs, but more technical projects such as adjustments to the float action—which on some models requires carefully calculated weights and on others requires a delicate bend in the float arm—should not be attempted by any but the experienced mechanic.

Arnold Sutton, West Coast sports car mechanic and

regional agent for Solex carburetors, demonstrates the correct procedures on the latest PBIC Solex designed for the Porsche. While screw or bolt placement may vary slightly on individual models of the carburetor—slotted bolts may replace the hex-heads shown here—the technique is identical.

Most Solex models incorporate the Bi-starter principle, an idea which is basically a hand-operated mixture control to provide extra richness for starting. Early Bi-starters had but two positions “open” for cold starting and “shut” for normal engine temperatures. Later models included an “intermediate” position for in-between periods.

Although several base flange shapes are provided to adapt the Solex to varying engine designs, most models are secured to the engine by two hex-headed bolts through the base of the carburetor. When tuning the carburetor it is not necessary to remove it from the engine; cleaning may entail more work and it may be imperative to remove the carburetor to complete the work on a bench.



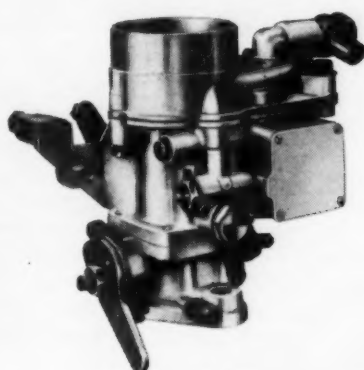
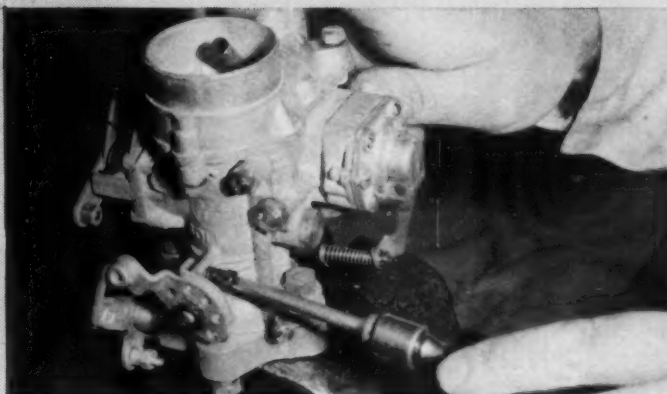
There are at least five ways to adjust the Solex. Two of these are external adjustments: the air bleed and the volume or idle screw.

These are adjustable with a screwdriver, while the carburetor is mounted on the engine. The volume screw provides metering action for the amount of mix which reaches the combustion chambers at idle speeds. Over-richness causes the engine to "hunt" or to stall as readily as will an over-lean mixture. Turning the screw counter-clockwise limits the mixture: clockwise will expand the mixture.

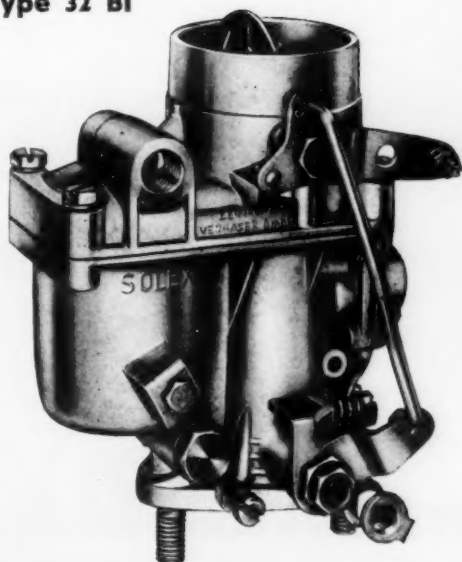
1

An idle screw or slow running screw adjustment, mounted on the abatement plate of the throttle lever limits the action of the throttle and sets the idle speed of the engine. Turning this screw inward will increase the engine idle; outward will slow rpm.

2



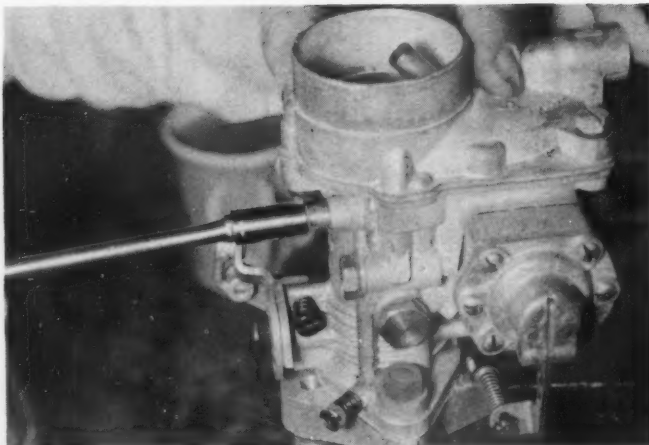
Type 32 BI



In operation, fuel flows from the main jet, via a small channel to the mixture orifice. On Solex models such as those on the Singer, this channel can be seen as it emerges directly above the larger horizontal lead from the main jet. This turns upward and eventually passes through the pilot jet to a downward directed channel which leads to the mixture orifice. This orifice is one controlled by the volume screw adjustment on the outside of the shell.

3



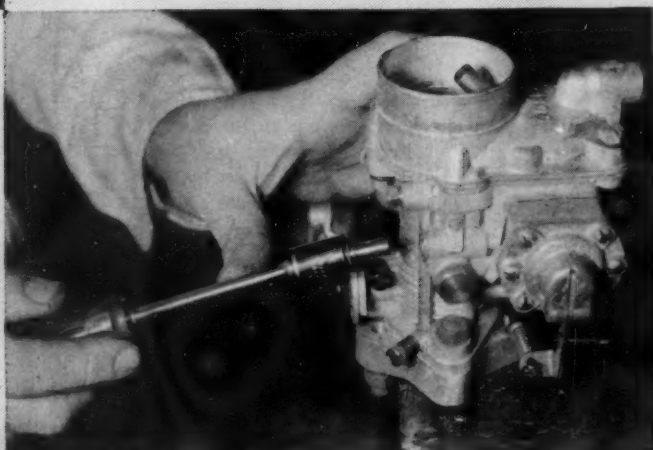


The pilot jet, located outside the shell, also affects the carburetor characteristics. Dirt or clogged pilot orifices, can give a car a stutter the envy of Roscoe Ates. Located near the top of the air-horn or bowl cover lip, it can be removed by a screw driver on some models and by an 8mm socket wrench on others.

4

The pilot jet, once removed from the carburetor shell, can be cleaned or replaced. Substitution of a larger pilot jet will enrich the idle mixture; a smaller jet will weaken the mix. In extreme cases it may improve performance to substitute a pilot jet of different size because of local atmospheric conditions, but in most cases the only adjustment will be to clean or replace a worn jet.

5

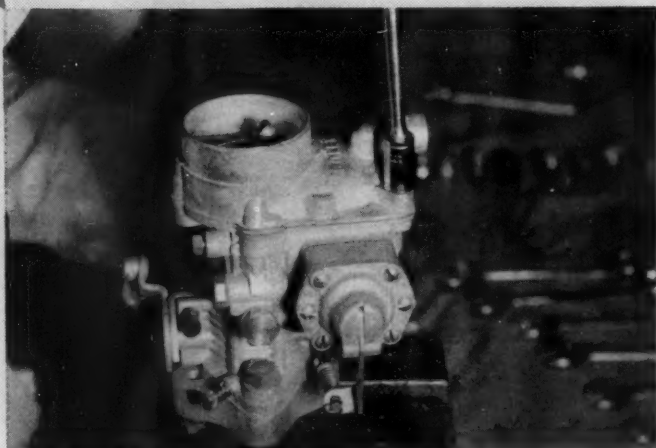


To clean the main jet it is not necessary to remove the air-horn or bowl cover. On some models, the jet which is at the side, upper top area of the shell, can be removed with a screwdriver; on other models a 14 mm socket will do the trick. Once the housing is removed the jet can be unscrewed for cleaning. Main jet sizes can be changed to provide more or less fuel flow: a larger jet for more power & a smaller jet for economy.

6

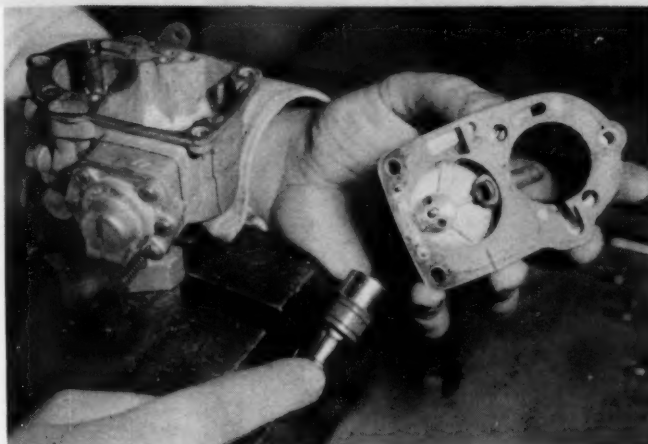
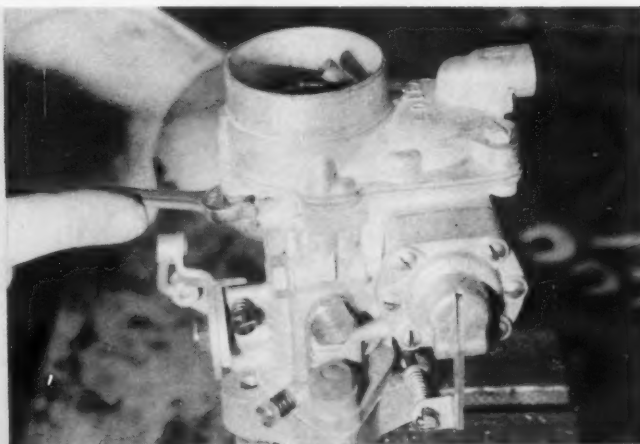
To clean or change the choke tube or carburetor throat, it will be necessary to remove the air-horn. It is secured to the carburetor shell by three bolts or screwheaded bolts. Two of these will be found on the top of the cover.

7



A third bolt is located at the base of the air-horn lip. When all bolts are removed the cover can be lifted free. If the cover sticks a few light taps with the screwdriver butt should free it.

8

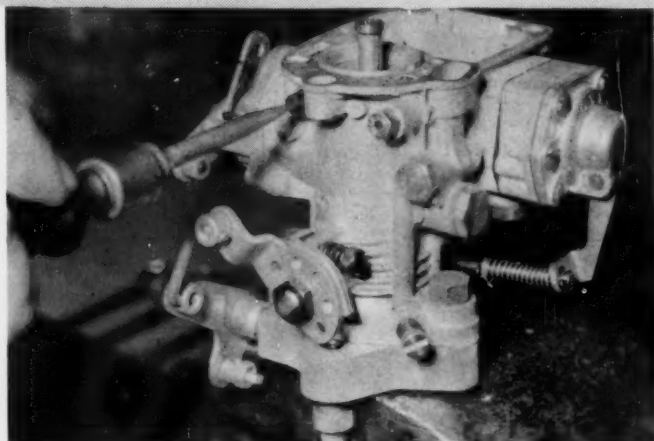
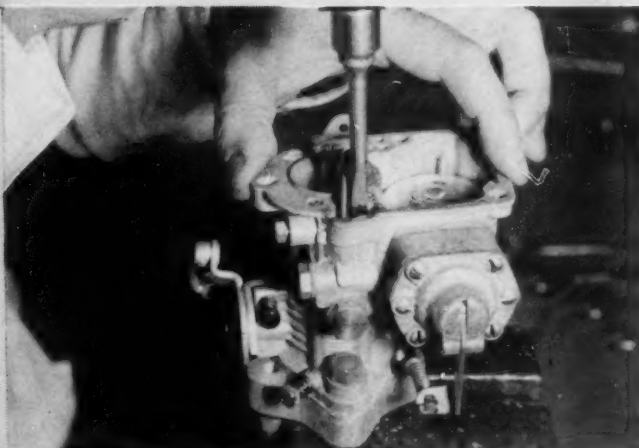


The needle valve seat assembly is located in the air-horn cover. It should be cleaned: it is possible to change the size for performance, but this should be done only with the factory recommendation. If the valve is dirty and cannot be cleaned it should be replaced. Never attempt to "grind in" a needle valve. In cases where damage to seating is small, a new seat can be made by removing the assembly from the cover, placing it on a hard surface and tapping the needle home with a hammer.

9

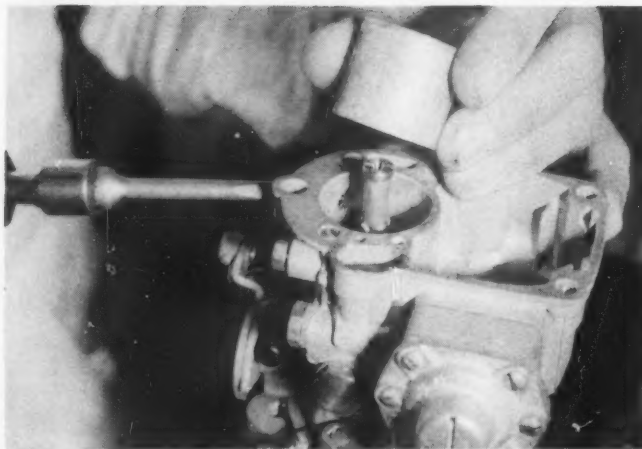
To remove the choke tube or throat, after the air-horn cover is removed, it is necessary to remove the accelerator discharge nozzle. This is bolted directly to the carburetor shell by a screw recessed into the depression above the pump casing. Once the screw is loosened, the pump nozzle can be lifted out. Clean the nozzle while it is removed.

10



The throat is positioned by pressure from a screw which fits through the shell to the outer circumference of the throat. When this is loosened, the throat lifts out.

11

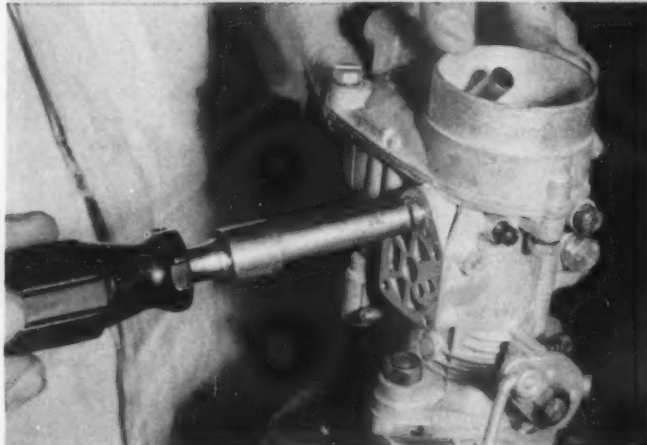
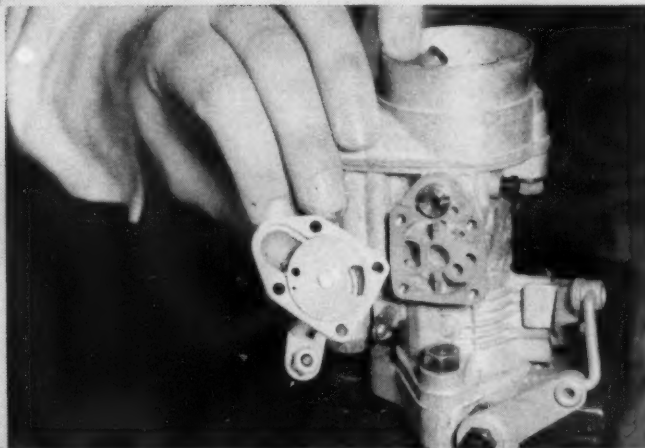


The throat should be removed for cleaning, replacement or exchange. The throat supplied stock with the car is designed for normal atmospheric conditions. It may be possible that a change in throat size will improve your car's performance. Before you make a change, however, check with your nearest factory representative. The throat size is imprinted on the top lip.

12

The bi-starter, which is supplied on all late model carburetors and on most Singer Solex models, is a disc controlled chamber fed via the starter jet and air pet: it is put into operation by a lever which rotates the spring loaded disc which registers with ducts regulating the entry of fuel into the airway below the throttle. It is removed by four screws through the housing.

13

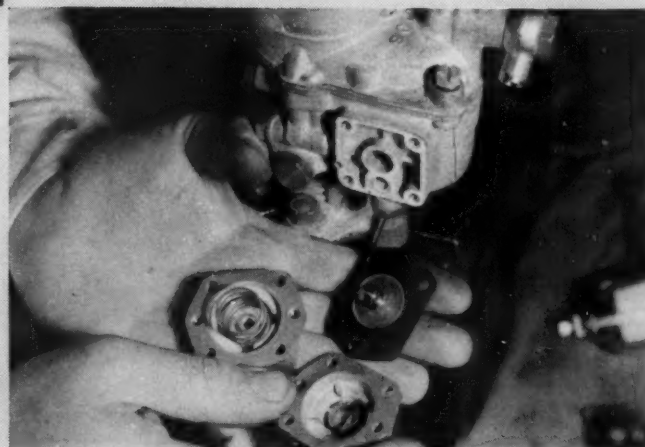


The bi-starter jet can be removed for cleaning with a wide, stubby screwdriver. All jets should be replaced if excessively dirty. They can be cleaned with acetone, or carburetor cleaner.

14

The accelerator pump, on the opposite side of the carburetor, is held by four screws. Two screws, located near the center of the perimeter, release the diaphragm. When removing the diaphragm keep enough pressure on the unit to keep the spring beneath the covering in position. If the diaphragm shows signs of wear or is cracked, it should be replaced.

15



international badges

*The right of club members alone,
badges demand tasteful and limited use.*

CLUB membership is a proud thing. Members of the SCCA, CSCC, Four Cylinder Club, or what have you, would justifiably resent anyone wearing their insignia who is not a member. Each club has a string of activities, a purpose in organization, and a comraderie that is peculiar to that club and the badges for the owners contain all of that meaning. Bugatti owners faint, whistle, jump up and down with insane but justifiable enthusiasm when they see the Bugatti emblem, anytime, anywhere. All clubs are like this, and it's great as far as we're concerned.

The first impulse, upon seeing a colorful, beautifully designed badge, such as those on our cover, is to want one for your car. But avoid the impulse to decorate your badge bar or your grill with the insignias of clubs to which you don't belong. It might detract from the design of your car, and it might also bring down the wrath of some club member on your head.

There are dozens of other uses for the badges. The Long Island Sports Car Club has found one of the most successful. At their Badge Bar Bar they have collected badges from international clubs and given them a prominent display. A collection kept in one's home does not imply that one is a member. Attaching the badges to the car is like putting hock shop trophies on your mantelpiece.

The badges are made in Spain and are distributed locally by Charmant Imports on Long Island. They are of a heavy brass or aluminum measuring 3 inches overall and are impeccably finished. Colors are baked on in heavy and brilliant enamel. There is a selection of 42 badges in all, from all over the world.

#





What to wear is another problem for females. New combination outfits are appearing, however, that permit the ladies to store little in the limited trunk space but still have plenty of changes when on vacation.

Functional, versatile, your clothes can be as well-styled as your car.

burn that duster

UNCOMFORTABLE clothes prevent good sharp handling as effectively as underinflated tires or 6 turns lock to lock. Heavy clothes tie up a driver's legs, preventing the light accurate breaking and accelerating that every owner enjoys. A long coat can foul your floor shift. Heavy gloves can be too hot and prevent delicate "feel".

Versatility is the theme of the sports car owner's wardrobe. It is well known that the fraternity of sports car owners use their cars for far more than buzzing around a track. Driving to work, to play, to the store and visiting, you want to get out of your car ready for the activity for which you came.

What to wear? The common long winter coats get crumpled and folded up uncomfortably under your. Some materials crease easily and you end up looking as though you've spent a weekend sleeping in your clothes.

But you want to stay warm too. You've got to be protected from the wind and sun. And suppose you're visiting friends and you want to make an adjustment under the hood to perk up the performance for the homeward bound leg. Your clothes will have to take a bit more cuffing about than everyday clothes can take, and still look well.

A study of the situation shows that there are clothes for the pilot and co-pilot aplenty. Strong corduroys are neat, comfortable, warm, casual and fit into any setting. New "wash and wear" clothing of Rayon, Dacron and Orlon allows you to be more free with your arms and legs because these new synthetic materials are very light, as well as very sturdy. You don't have to fear a huge list of cleaning bills either; you can just pop them into the washing machine,

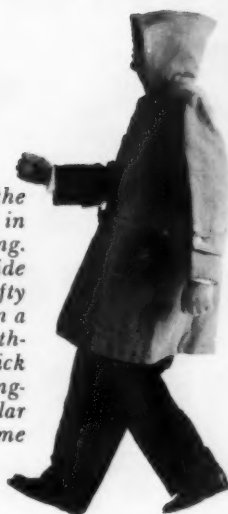
Photographs by Lester Bookbinder

Tire and tools courtesy of J. S. Inskip, Vaughan Motors, Fergus Motors

Clothing courtesy of Macy's New York



Flexible in style and comfort the duffel can go anywhere. It fits in at the office or when driving. Prices extend through a wide range from twenty-five to fifty dollars. The coat can be had in a variety of materials with or without hood attachment. The thick wool type seen here is in the English style which became popular in the U.S. about the same time as the MG TC.



Gloves from France, with knitted backs, a neat corduroy cap with belt in back and a warm three-quarter coat are a good looking combination from behind any wheel.

After arriving at work your suit must be as neat as it was when you left home. New synthetic materials of a wash-and-wear nature, as well as various wool and cotton combinations will give all around service.

hang to dry and soon they're ready to wear again.

What about style? Just as you hope your car looks like the neatest, most efficient thing on the road, so with the clothes you wear; they should be functional yet good looking.

Corduroy pants with a neat leather belt in the back with leather piping on the pants pocket will wear forever and are fashionable as well. A hooded duffel is a very practical protection against the elements and is fast becoming stylish and acceptable in the active business world. Thick crepe soled shoes of soft leather and just a few inches of lacing are very popular, give a good grip on the ground for the out of doors person and are comfortable and light for driving purposes. New Italian shirts, open, loose, and casual give warmth in the long sleeved versions and suggest the European styling that will go very well with your sports car.

For the ladies who are prevented by the limited trunk space from taking huge amounts of clothing on vacation there are three piece units of jackets, skirts, slacks that are designed for casual and more formal wear. Hooded blouses and dresses that keep the hair in place are sometimes made of crease resistant materials that allow long driving and neat appearance when m'lady arrives.

SCI makes some suggestions in the surrounding picture material, but there are loads of alternatives, suiting all kinds of needs and purposes. The days of the dusters and goggles are over, and the days of stylish comfort are here to stay.

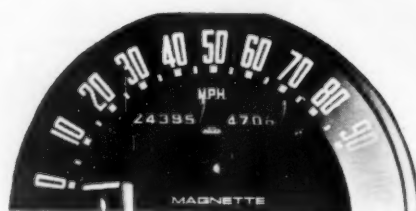
#



the Magnette



**24,000
miles
later** →



*You've seen tests on new cars before,
but what happens to a sports-handling
four seater after a year of tough driving?*

*A four-passenger
"two-thirds" car,
the Magnette 102
in. wheelbase
permits parking
in tight spaces.*

By JIM WHIPPLE



IF you want to know what a car is really like, don't test a car fresh from the factory, test instead a car that's been run for 20,000 miles by a tough driver. It may sound strange but that's the kind of testing that tells how a car will perform over the long "middle" period of its life.

With the above in mind the MG (ZA) Magnette Saloon was the car we chose, with a few more reasons impelling us to this "semi-sports" model.

We are a member of an ever larger number of sports car enthusiasts, "The MG DP's," a group of unfortunates whose growing families have forced them to the extremely painful alternative of disposing of their cozy Midgets in favor of a two-seater sedan or convertible. The possibility of being able to have our family sedan and our sports car cake on the same four wheels was intriguing, to say the least.

Another thing, our test comes at a time when interest in

Sturdy, 1489 cc BMC block has bore of 2.785, stroke of 3.50 ins., is shared with new MG A.

the year-old Magnette has reached a new pitch, due to the common engine, a 1489cc BMC block, with pushrod-operated overhead valves, shared with the brand new A Series MG roadster. The engine has a bore of 2.785 inches and a stroke of 3.50. The Magnette version develops 60 bhp at 4800 rpm, using a 7.15: 1 compression cylinder head and a pair of 1½ SU carburetors. Switching to richer carburetors and an 8.17: 1 ratio head, ups the engine's output to 68 bhp at 5500 rpm for the "A" roadster. The possibility of relatively painless and low-cost modification to add 14% more horsepower to the already very adequate performance of the car is sure to give the Magnette's respectable sales curve a boost. It's also important to note that the bumper crop of power boosting devices which mushroom after each significant MG engine change will be at the Magnette owner's disposal.

Our test and evaluation was pulled on a 14-month-old Magnette, one of the first cars imported to the U.S., with over 20,000 hard and fast miles on the odometer, and the absolute minimum of service and tuning on the engine and chassis. The car's owner, it might be added, drives a Lancia Spyder in competition, and could never be accused of babying his cars.

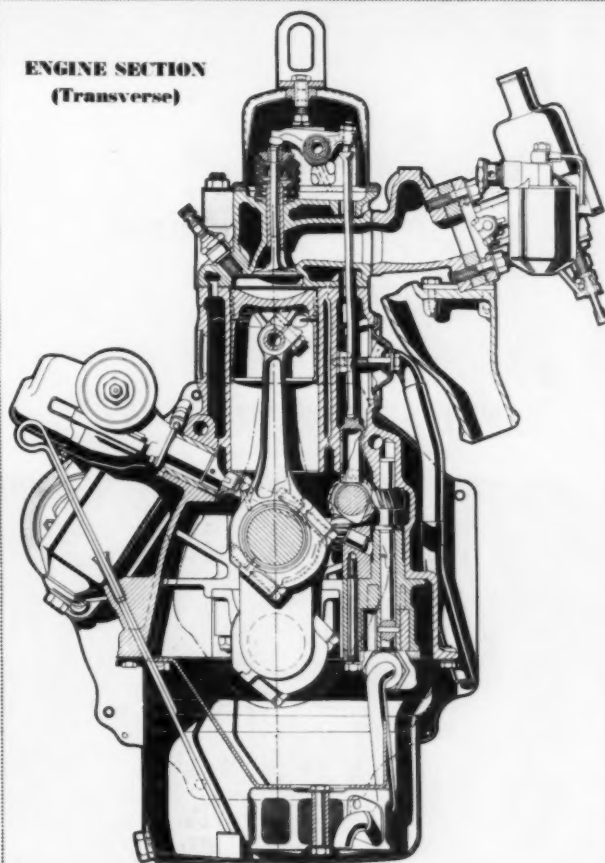
Our test car was hardly a carefully tuned demonstrator, with many manhours spent looking for and eliminating trouble spots. Rather, this Magnette came close to being what the average owner might have on his hands a year and a half after delivery. We had thought that these conditions might put the MG at an unfair disadvantage when compared with tests of cars with only 1,500 or 2,000 miles under their wheels. However, the facts proved otherwise. The Magnette at 24,500 miles gave substantially new car performance, and it had been untouched except for lubrication, brake adjustment and minor carburetor and ignition tuning. So our "year-after" test and evaluation goes far toward establishing the car as an excellent piece of machinery, engineered and assembled to keep its "new car" qualities. Briefly, we found the Magnette maintaining the marque's reputation for rugged durability.

The Magnette comes with a built-in psychological disadvantage for anyone trying to evaluate it. The traditions and records behind the name "MG" lead one to expect fully-developed sports car handling and performance, while the well-balanced, luxury-finished body presupposes the comfort and riding qualities of a scaled-down Bentley.

The more we drove the car, and pored over its details, searching for bugs and wrinkles, the more we gradually came to realize that the slide-rule boys at Abingdon have come closer than anyone ever has to combining all the driving and handling qualities of a well designed sports car with the quiet, comfort and convenience of a roomy four-passenger sedan.

Beneath its handsome lines and smooth, uncluttered panels, the Magnette's one-piece welded steel body-frame proved as solid as the hull of a Sherman tank. After a hard and fast 20,000 miles and over a year's use, the only rattle we could provoke came from the steering wheel horn ring. The body is of the same "step-down" design used on large Hudsons from 1948 to 1954. As in the Hudsons, this permits the Magnette's floor to be a good four inches lower than it would be in conventional separate body and chassis design. Consequently passengers sit

**ENGINE SECTION
(Transverse)**



Clean styling all around, sturdy bumpers, good visibility are all desirable features of MG family car.



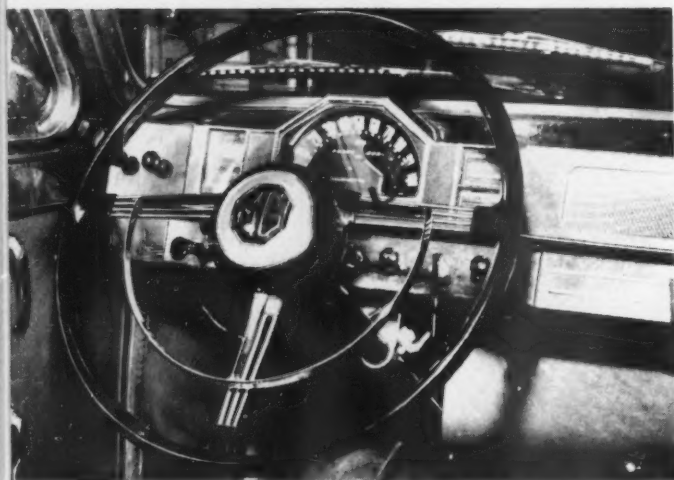
Generous track width gives lateral stability. Impression is of an inexpensive "baby-Bentley."



Fine engine and top handling proved to be unaffected after a full year's hard running.



When show-room new, the Magnette "office" looks like this — luxurious with carpeting, chrome and paneling. The luxury will last, see below.



After 24,000 miles, very little wear can be noticed. Only the pedals and floor padding show any sign of the hard use given the Magnette.

lower and overall center of gravity is lower. This is one of the important factors in the Magnette's extremely good cornering and swayless ride, which comes remarkably close to equalling that of the MG roadsters. Incidentally, this same "sunken floor" design is carried out in the trunk compartment. The 15 gallon slab-type gas tank has been placed directly behind the rear seat over the rear axle "hump" so that luggage and spare tire weight can be nearer the road.

Seating comfort rates a real rave. There's ample width, a full 50 inches (only 8 or 9 inches less than "big" American cars) in both front and rear. The car will hold four 200-pound six footers in comfort over long trips. The rear seat can hold three persons of modest dimensions for short trips, but basically the Magnette is a four-passenger car.

The front seats are just about the best we've ever tried. They are beautifully contoured buckets that give even support to back and shoulders. The upholstery beneath the well-tailored leather is deep and firm. We felt completely relaxed at all times yet "with" the car even through the sharpest corners. These seats have to be ridden in to be fully appreciated.

The rear seat is a deeply padded bench-type with both side and center arm rests. With the center rest down, the two rear seat passengers are riding in the equivalent of two club chairs. The front passenger seat is adjustable, permitting a restful change of position as well as allowing extra leg room for the right rear seat passenger. It's almost impossible to name a car with better seating at less than twice the Magnette's \$2400 price tag, even a year later.

The rest of the interior maintains the same high quality standards. There's deep carpeting, real hardwood on window moldings, leather-covered door pulls, well-fitted hardware. The "extras" are standard on every Magnette. There's an electric clock, four ash trays, a highly effective heater-defroster system with fresh air intake at the cowl, two driving lights, and even a pair of windshield washers. All of this still worked without a hitch.

The Magnette's ride is a feather in the caps of BMC suspension engineers. Springing is by independent coils in front and long rubber-bushed semi-elliptic leaf springs in the rear. Shock absorbers are heavy duty telescopic mounted within the coils up front, slanted outward to dampen body roll at the rear. These shocks are equipped with cooling fins, and look like baby motorcycle cylinders. The object of the fins is to keep the hydraulic fluid from overheating, thinning out and consequently "fading" in snubbing effect. A torsion bar at the front of the chassis completes the layout.

These suspension components still add up to an extremely comfortable ride. Cobblestones and car tracks are blotted up almost completely yet the suspension is firm enough to smother pitching and rolling before it starts. The only fault, a minor one, that we could find, in the suspension's behavior, was a tendency for the nose to dive in "panic" stops. In all fairness to MG roadsters past and present, the Magnette does not have the same "on rails" cornering characteristics. The sedan does lean in a fast, tight bend

and it will break loose a good deal sooner than the Midget. However, the precise rack-and-pinion steering and firm suspension gets you back on course with the minimum of fuss. For all around comfort and stability however, the Magnette can hold its own against any other production four-door sedan of its size and weight.

Performance-wise the Magnette is definitely lively. We always felt plenty of "go" in top gear to keep up with traffic in the fast lanes of parkways and turnpikes. For a little extra "zoom," a smooth power-on down shift into 3rd gear at 45 mph will jump you back up to 60 in a commendably short time. Compared to the TF 1500 with its 5 more horsepower and 450 lbs. less weight, the Magnette does very well indeed, churning up from 0 to 60 in 21.8 seconds compared to 16.3 for the roadster.

The Magnette will cruise all day at 70 mph with a minimum of engine noise. Given plenty of room to roll the lively little sedan will chalk up an honest 82 or 83 mph.

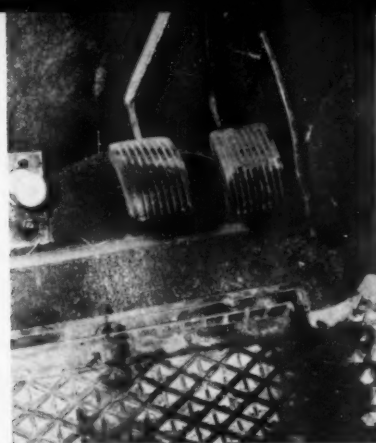
Steering is the same excellent, very positive, vibration-free, rack and pinion set up found on TD and TF Midgets. Steering is $2\frac{2}{3}$ turns lock to lock with neutral action which is neither oversteer nor appreciable understeer. The car tracks beautifully on rough pavement, dirt roads, etc. One of the car's few drawbacks; we wish that the adjustable steering column of the Midget had been retained on the Magnette. When the seat is fully racked back for the long-legged, 6-foot-plus driver, the steering wheel should move back to permit a fully restful steering position with hands halfway up the wheel and elbows close to the body.

The transmission is a bit "different" for the first ten minutes but soon begins to grow on you. The shift pattern is standard "H" with 1st gear located in the upper left hand corner and reverse to the left and back. The synchromesh acting on 2nd, 3rd, and 4th gears, is one of the best we have ever tried on any car, sports or touring. Coupled with the suspended pedal, hydraulically-actuated clutch, this gear changing unit is really a joy. Clutch pedal pressure is low, yet the engagement, or "bite," is quick and always smooth. The shift lever is longer than that of the T models and the consequently longer throw cuts down the potential for "snap" shifting. The unsynchronized first gear is normally used only for uphill starts of a fully-laden car. The 17.7:1 ratio of 1st requires a "peaking" rpm of 5,700 to reach 24 mph, which means you run out of "revs," in a hurry. We found that for best acceleration time the shift from 1st to 2nd should be made at about 15 mph. This 1st gear is powerful enough to take the Magnette anywhere traction can be maintained.

Instrumentation is very good, with the arc-type speedometer clearly visible above the steering wheel cross bar and projecting above the rest of the panel top so that the driver need not divert his attention from the road ahead. Flanking the speedometer dial are (happy day!) the full quota of instruments, including the ammeter and oil pressure gauge, too often missing from U.S. panels these days.

Conspicuously absent, unfortunately, is a tachometer, which has been as much a part of recent Midgets as the

(Continued on page 60)



Close-up of pedals shows how little they were worn in the period of a year. Note that they have NOT been cleaned up.

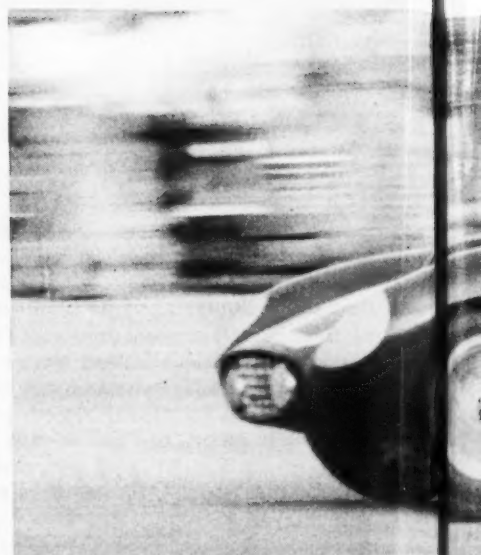


Leather on seats of new model is clean, soft and unwrinkled. Padding is firm and contours give firm support without hardness.



After more than a year of extremely hard wear, the seats remain firm and solid with little signs of the mileage other than a few wrinkles and a high shine.

*It's all pegged
on racing,
but Bahama Speed Week
was virtually a...*



Holiday in *Nassau*



*Moss (near right) and friends
give up driving chores for one
of the many entertainments.*



*Sherwood Johnston's D Jaguar
was forced out on Friday
due to damaged axle stabilizer.*

BELIEVE it or not, a race did take place down in Nassau in the Bahamas a while back.

The Marquis de Portago ran his Ferrari Monza to win in Friday's Governor's Trophy, nosing out Phil Hill in a three litre Ferrari and Sherwood Johnston in a D Jaguar. Hill stormed back to win on Sunday in the 210 mile Nassau Trophy Race.

Localites also found room to duel in Saturday's brief event. Bahamians found their victor in Sir Sydney Oakes in a slow but colorful race.

While the days were devoted to preparing and racing machinery the evenings contained other diversions. When first reports filtered back to the States from the beautiful vacation isles of the various entertainments and escapades that were occurring during Speed Week, many wondered if the races would ever get run.

Certainly the Nassau event is one of the best known events on the American racing calendar. It draws the fiercest machines (four D Jaguars, 15 Ferraris among 100 entries). It draws the best drivers (Hill, Johnston, de Portago, Moss, Gregory, etc.). It draws famous personages from all over the world. It also engenders some of the

Photographs by Dan Rubin



Hill's 3.5 Ferrari Monza won Sunday's Nassau Trophy Race, nosing out hard chasing Marquis de Portago, who won Friday's event in three litre Monza.

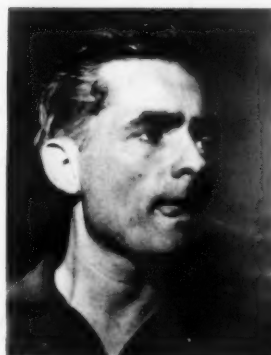
fiercest, most violent, dangerous cocktail parties ever to grace a "sporting" weekend.

There was swimming, boating, water-skiing and overnight stays on the nearby islands for entertainment so that the purpose for which the crowd had seemingly streamed into the Bahamas would not be too boring or prove too serious a strain on the visitors' ability to concentrate. Parties of one nature or another took place every night.

Despite the effect the constant diversions might have had on the drivers a very hard fought battle took place during the two main days of racing. Hill and Johnston on Friday looked as though they were going to continue the battle that took place at Elkhart Lake at the Road America course and during the President Cup event at Hagerstown. De Portago started late and had to fight through the entire pack until he came up on Johnston at mid-race, slipstreaming the D Jag which was first and waiting for a chance to pass. Braking for a corner, Johnston surprised de Portago, and received for this lack of consideration, a stove-in rear end. The accident sent the D Jag wild, while de Portago spun completely around. Both recovered quickly and the duel was on again. But now de Portago was first, Johnston second and Hill third. Johnston dropped out after his violent attempt to pass the wild and wily Spaniard resulted in a damaged stabilizer. De Portago shot home first, Hill second.

Sunday was Hill's day. Over 210 miles the big trio, with Masten Gregory in a 3 litre Maserati added, battled during the early part of the race. But soon Hill began building up a lead which, at the end, stretched to half a minute. Johnston had again dropped out with mechanical trouble, this time an oil leak. Hill's 3.5 Ferrari won the grind with an average of 98.207.

That, in case it is not obvious, is fast. Even faster than the rate of gin consumption. #



West Coast's Phil Hill



Marquis de Portago



MacAfee (left) enjoys one of the main diversions of Bahama Speed Week.

SCI Test: Mercedes Benz 300SL

(Continued from page 14)

The 300 SL has positive syncromesh on all four of its forward speeds. You thrust it into first, simultaneously punch the throttle and release the clutch and, in a number of seconds only slightly greater than your reaction time, peak at 40 mph. The sensation of catapulting acceleration is unforgettable. Second, again with tremendous G's, propels the car up to the high sixties in scant seconds more. Third is a wonderfully useful ratio with terrific dig from about 9 to 96 mph.

The torque of the little three-liter engine is fantastic and it's hard to see where it all comes from until you remember that the injection system is pumping fuel into the cylinders at a constant rate that carburetors cannot match. Fourth gear, with the standard rear axle ratio, gives smooth, continuous acceleration from 15 to 140 mph! It is thoroughly adequate for city traffic and even for pulling fairly stiff grades. For fierce acceleration and fast hill-climbing, third meets nearly all requirements. During our shakedown tests among the steep peaks and canyons of the Santa Monica mountain range, we had to resort to second cog only on the very steepest grades, and then we flew up to them. As for first gear, you should always use it when starting from a standstill. Beyond that you just keep it in reserve for pulling stumps and for competing in the Alpine Rally.

There are tricks to driving the car. I cannot see it as anything but a man's machine. It's too hairy a beast for a woman to drive unless she's a fairly brawny athlete. Its steering, with less than two turns from lock to lock, is definitely heavy and has a wonderful feel. The steering gear itself is of the no-backlash recirculating ball type with hydraulic centering. The brakes are magnificent and indestructible and they're vacuum assisted. But they don't lock the wheels at a touch, Detroit power-brake style. They demand some muscle power, and so do the clutch and the shift lever. In the 300 SL, driving is not the near spectator sport it has largely become in this age of robot-ized motoring.

Actually, for the average male, minimum muscular endowment is required for the comfortable operation of the 300 SL. Caution and sound judgment, however, are essential to the continu-

ing enjoyment of this or any other high-performance car and even a small error can have very discouraging consequences. For example, I had read in both a British and an American road test that the car should be pushed through turns under power, actually steered with the throttle.

As we approached our first tight corner I mentioned this to Leutge. "No—No!" he cried. "Do that and the rear end comes swinging around. With these pendulum axles you have to be careful. The oversteer isn't much if you have competition springs, but with standard springs you must watch it all the time."

At this point I asked Leutge to demonstrate proper fast-cornering technique with the 300 SL and he took the wheel. He popped his gear changes with a smart, hard style and reached his desired speed of entry into the turn. All the way around the curve he maintained neutral acceleration, just patting the throttle lightly and occasionally to keep his velocity constant. As the curve began to straighten out he stomped the throttle to the floorboards, rocketing into the straight. Further checking with men who have driven 300 SL's in competition verified this as the one-and-only technique for keeping out of trouble during high speed cornering. With this car you do not horse around with throttle steering.

During the very hardest cornering there is no perceptible body roll and you feel an unusual sense of security. This is added to considerably by the car's phenomenal brakes which are fade-proof and provide uncanny stopping distances. The adjustable bucket seats give excellent support against sideways motion. There's a remarkable absence of wind noise in this car, even at 138 mph, but otherwise it is by no means a silent servant. The auxiliary fuel pump, used constantly at high speeds, emits a nervous whine at the driver's back. The indirect transmission gears have a loud, vintage buzz. These sounds are more or less musical to the enthusiastic ear. Less so is the peculiar, harmless klunking noise that originates in the rear axle mechanism of these cars when some, but not all, left turns are made.

The coil-spring four-wheel independent suspension gives a ride that is surprisingly soft. The cornering feel in particular is quite different from that of a fast, solid-axle machine and

is hard to describe. In place of the sensation of unyielding chassis "bite" on the road there's a softness to the 300 SL's cornering grip. You do not feel as though you're on rails; you know damned well you're on rubber tires. The bite is tenacious all right, but not harsh. Barrelling full-bore down the straightaway the car never feels as though it's becoming lighter. At top speed it still squats like a stalking cat and its traction under all conditions is pretty unbeatable.

So far, we've been talking about the basic 300 SL "economy model" with touring-car camshaft. With this setup the output is 220 bhp, the engine idles at 750 rpm and the torque characteristics are quite uniform throughout the engine rpm range. This combination makes for one of the most thrilling rides of your life. That is, until you experience a 300 SL running the hot, competition cam.

With this one modification the car acquires an entirely new character. Now it peaks at 240 bhp — a figure incidentally, which other road tests have mistakenly associated with the standard model — and it idles at 1100 revs. In the lower engine-speed range it is slightly rougher and it neither adds to nor subtracts from the vehicle's performance. It's in the higher rpm's that it makes another car of the 300 SL.

Lance Reventlow of Hollywood is the devoted owner of a 300 SL with the racing cam and all the other performance options. His car has heavy-duty springs and shock absorbers, Rudge wheels, an assortment of rear-axle ratios and special racing tires. It also has one of the all-aluminum bodies that the factory has available. The light body represents a weight saving of about 350 pounds and Reventlow's car represents an investment of well over \$10,000.

Lance introduced me to the delights of this rarified form of motoring with a demonstration of the effect of the racing cam. "Watch this," he said, as he dropped into Third at about 2,000 rpm and bore down on the throttle. The tach needle rapidly climbed past 3,000, then 3,500. I watched and waited. Then at 3,600 all hell broke loose. The car, already accelerating as few cars in the world can do, took off as though JATO units or a second engine had been cut in. Beyond 3,600 the acceleration was appalling. It was

like being pulled forward at fantastic speed at the end of a powerfully-drawn cable. Oddly enough, the last time I had experienced that precise sensation was at the wheel of a 7.1-liter, supercharged Type SS Mercedes-Benz built in 1930.

Reventlow stayed on the throttle until the tach hit 5,500 and the scenery was a blur. The inexorable torque stayed the same, according to the hard pressure on hips and shoulders, until he backed off. In the "mild" range again, he slowed to 15 mph, then pulled away strongly in top gear. "That's what I mean," he said. "It's really two cars in one. One is a lamb and the other is a raging lion. And you can turn them off and on with a touch on the throttle. You can putter around town for a year and never call on the fierce side of the car's dual personality. But the instant you want that real wild performance, it's there."

The competition springs and shocks give this car a far firmer ride and cornering bite. The Rudge disc wheels, which cost \$350 per set, add 25 pounds to the car's weight. But they're essential for long races in which tire-change stops are critical. This car has won both *concours* and races.

One of its recent race wins was at Torrey Pines, with Bruce Kessler at the wheel. Other cars in the full entry list at Torrey could be heard for miles as they blasted around the course. The fact that the obviously competent 300 SL ran a muffler and purred its way to the checkered flag without pyrotechnics impressed many spectators. M-B's West Coast sales manager tells me that during the week that followed, 11 300 SL's were delivered to individuals who said they were sold at Torrey Pines.

One of the main contributing factors to the long string of 300 SL racing victories is its frame, which is unlike that of any other M-B production car. The complex network of small-diameter tubes is erected in such a way that the tubes are subject to push-and-pull stresses only, and not to twisting stresses. This torsional stiffness has an all-important effect on keeping suspension geometry, uniform and that, in turn, as a decisive effect on road-holding. The tubes are everywhere — above the engine and in the passenger space. The frame is made mainly by hand and its appearance in large-scale production is not likely.

The real guts of 300 SL performance, of course, lie in its engine, which is a remarkable blend of radical and conservative design features. On the conservative side are the cast-iron block, the single overhead camshaft, the NOT vee-inclined valves, the far

from straight-through porting, the moderate compression ratio. This last, nominally 8.55 to one, varies with the individual engine and the actual ratio is stamped on the cylinder block, just under the name plate. The compression ratio of our standard test car was 8.28 to one.

On the radical side are the offset, inclined engine mounting position, and the unusual combustion chambers which do not extend into the head at all but are contained entirely within the cylinder block. The head has a perfectly flat lower surface and immense valves for a small engine; the intakes measure 1-5/8 inches and the

exhausts are 1-15/16. Most radical of all, of course, is the fuel injection system.

The 300 SL's crankshaft is cradled in seven main bearings. The short, H-section connecting rods are ground to a smooth finish. A passage up the center of the rod carries oil to the wrist pin. The heads of the full-skirted pistons are slightly wedge-shaped and they constitute an unusually functional part of the combustion chamber. Each piston carries three compression rings and one oil ring.

The single overhead camshaft rides in four bearings and has a large vibration damper at its forward, sprocket

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end. According to my factory informant, the standard 300 SL camshaft is identical to that used in the Type 300S touring machine. A number of people have wondered what effect fuel injection has on valve timing. Evidently it has none.

The lobes on the 300 SL's camshafts have a fast high lift and very sporting duration and overlap characteristics:

	Standard	Competition
Inlet opens	11°	20°
(Before top center)		
Inlet closes	53°	58°
(After bottom center)		
Exhaust opens	36° 30'	56°
(Before bottom center)		
Exhaust closes	10° 30'	18°
(After top center)		

Cold-engine tappet clearances are .002 ins. for the inlets and .008 for the exhausts. For an overhead-cam valve train, the 300 SL's is quite silent in its operation.

A point of considerable interest to the engineering fan is the more than slight resemblance between the 300 SL engine and the basic engine that powered the immortal Types K, S, SS and SSK Mercedes of the Twenties and early Thirties. Dr. Porsche designed the old single-cam six with its eerie-sounding Roots blower. The ultra-modern Mercedes six looks much the same under its cam cover. The staggered valve arrangement is the same and the cam-follower layout is almost identical. It's also interesting that the acceleration effect that Porsche obtained with a costly and complicated supercharger has now been duplicated and surpassed by means of the 300 SL's racing camshaft.

With the fuel injection system, an assembly of six small plunger pumps delivers atomized gasoline directly into the cylinders, at a pressure ranging from 568 to 682 pounds per square inch. Air alone is drawn through the inlet valves and the mixture of fuel and air takes place within the cylinders. The timing and the amount of each shot of fuel is regulated automatically and precisely. Filtration of both air and fuel is far more critical than in carburetor engines.

You might expect maintenance of the system to be extremely tricky, but it's not. The air filter requires cleaning every 2,500 miles, the fuel filter every 15,000. The fuel-feed system compensates automatically for changes in altitude and temperature. On the throttle body in the air-intake manifold there are a couple of adjusting screws for regulating idle speed and mixture richness. They can be adjusted with a small coin. And that's all there is to it.

One idiosyncrasy of the system is described in the Owner's Manual. "It may happen with the injection engine that after stopping the engine will turn a few backward revolutions. This does not necessarily indicate a defect. Engage a gear in this case and stop the engine by clutching." And another precaution: to stop, "turn the ignition key to the left *while idling*. Do not on any account try to stop the engine at a higher speed than the idle running one." I assume that violating this rule results in de-lubrication of the cylinder walls by powerfully-injected raw fuel.

Checking with many 300 SL owners

(at this moment there are 171 who have bought cars through the West Coast distributor alone) I have been unable to find any complaints against the reliability of the injection system or, for that matter, of the car as a whole. A mechanic who specializes on 300 SL's assures me, "You just drive the car — it takes terrific abuse and gives no trouble. We used to have one chronic complaint and that was about spark plug failure. Now we recommend platinum-point plugs and have no more of that trouble."

When you consider what it must cost to produce each of these cars — all the handwork, expensive components, quality — it's hard to consider the 300 SL as anything but a bargain at the base price of \$7463. And this includes a splendid set of tools, power brakes, hinged steering wheel, optional steering columns, clock, heater, an exhaustive maintenance manual, a parts catalog, minutely detailed instructions for the servicing of the car for its first 62,500 miles, and many other bonus items.

Actually, you can buy the basic 300 SL for \$6900 at the factory in Stuttgart, Germany. Transportation cost and import duty then become your responsibility. However, if you bring the car to the U.S. within six months of purchase, the factory refunds \$1300 to you, which offsets the freight and duty expenses and then some. With large parts inventories in several American cities and with an excellent, factory-supervised service organization, it's just about impossible to duplicate what the 300 SL has to offer at any price. #

Magnette

(Continued from page 55)

octagonal radiator cap. Instruments are lettered in radium paint and "black lighted." They are at their best in pitch dark driving and somewhat cloudy and hard to read at dusk when there's not enough natural light for easy visibility, nor enough "dark" for the luminous indicators and numerals to stand out clearly.

Engine accessibility too, rates high. The alligator-type hood, which is one rattleproof unit with the handsome MG grill, swings up out of the way on spring counter-balances and stays that way. The carburetors, distributor, valves, generator wiring, plugs, all are in the light of day and easily reached, as are drain cocks and oil filter, heater, blower ducts, hot water hoses, even the hose connections and slave cylinder of the hydraulically operated clutch. And,

of course, the combination brake and clutch master cylinder is way up on the fire wall and within reach. Only the voltage control and fuse block is a bit sticky to work on at the rear of the cylinder block. In short, the car is just what the Saturday afternoon "do-it-yourself" mechanic is looking for.

To sum it up; the Magnette offers the man who admires a well-designed, well-built automobile, and who above all loves to drive, a very solid package. The car is a remarkable compromise, providing exceedingly comfortable seating and ease of driving in a well-styled, extremely rugged body, powered for effortless, high-speed cruising by a lively, flexible and easy-to-maintain engine. Extra bonus features such as a smooth, efficient gear box, true sports car controlability and as stable and

comfortable a ride as can be found in any short wheelbase, light weight sedan, add to the evidence in favor of the Magnette as the answer to the Mid-get owners' dilemma . . . how to have a family car . . . and an MG too!

If all of the above sounds like a report on a new car the implication cannot be denied. The Magnette was almost like a new one. Other than the reading on the odometer about the only indication of hard use was in the softer, "broken-in" feeling of the seats and a freer running engine than would be the case with a new item. If we seem to be repeating ourselves, we apologize but it can't be helped — this car had more than 24,000 miles and hard miles at that, yet it still felt as if it had just rolled out of the dealer's door. Or even better. #

Moss

(Continued from page 31)

he returned, he was still badly disappointed with the car's handling characteristics. Later Mike Hawthorn tried the car, and reported that it was hard on the arms in curves, which seems to verify Stirling's report.

In Alfred Owen's offer to Stirling, he stated that if he signed and the B.R.M. was not successful in its first two races, Moss would be free to sign with another racing team. At the same time Adolfo Orsi of Maserati offered Stirling the position as number one driver, with the veteran Jean Behra number two and Peter Collins number three, plus a guarantee that Fangio would not drive for the team. However, as if in answer to Owen's proposal, he stated that Stirling had to make up his mind and sign before a certain date.

By this time Stirling was beside himself as to whether he should stick by the British cars and maybe have a chance, or to go with Maserati, who had a wealth of experience, money to back up future competition, and vast factory resources to work out new improvements as the season progressed.

Finally, in desperation, he called the leading English sports writers and invited them to dinner. At this meeting he laid his cards on the table, and asked these men if they could help him with this decision which was so important to himself, the writers and to the country as a whole. Most of those present considered Stirling's confidence in them a rare privilege, and after serious discussion the majority voted in favor of Italy.

The resulting tangle of pro and con which followed the press meeting made things no less easy for Stirling, but one plain fact did stand out above the argument, and that was that the achievement of a man is recognized as that of his nation. He had been the latest of Britain's top drivers to go foreign on the assumption that winning as a British driver in a foreign car is better than *not* winning in an English car.

Dick Seaman and Mike Hawthorn preceded him, and raised British prestige to great heights among the racing world with their winning ways. With this thought as a buffer between his patriotism and the fact that Maserati was the better bet, he sent his

(Continued on page 63)

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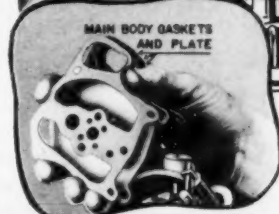
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Karman Ghia VW

(Continued from page 43)

used on the Transporter series, plus an air correction jet in the Solex carburetor of 195 instead of 180, to compensate for the new air cleaner. Power remains as standard, then, so we can expect somewhat poorer acceleration than the standard model. There remains some hope for the top end of the range, where the lower frontal area of the coupe may help out. This is not a wind tunnel job, though, and the regular VW is pretty clean, so miracles are not likely.

Getting into action, the flat four starts quickly from cold and similarly when warm if an understanding throttle foot is used. Idling is regular enough but not smooth in a mechanical sense, the engine already showing its desire to run fast. Low speed response to the throttle is sluggish, probably due in part to the long inlet pipes. Again, it jumps much more quickly at higher speeds, where the engine smooths out and feels at home. When accelerating it emits a purposeful rumble, and seems to make less thrashing noise than the standard car. The only marked flat spot in the speed range comes just after a leisurely shift from second to third.

Actual acceleration figures are about what could be expected of a brand new car, ranging as they do from a little slower than standard at low speeds to better than par at the top end. Terminal velocity is three or four miles higher than the VW, and half a second is lopped off the standing quarter. In spite of these improvements, the data are not outstanding on an absolute basis, and the Karmann-Ghia has revealed itself as a car that makes searching demands on its gearbox ratios. These, fortunately, are well spaced, second and third being very useful in reaching a speed which the overdrive top gear can maintain.

The spindly shift lever has a long longitudinal and short lateral travel, a push-down latch-out being provided for reverse. Shifting "feel" is adequate but not direct. The Borg-Warner synchromesh on the top three speeds is foolproof, the lightness of the gears helping to make shifts nearly instantaneously. If this is done under full throttle, though, the clutch will slip rather than grab. This is to be expected of an otherwise perfectly smooth touring unit, which heated up and tended to judder slightly after the acceleration runs.

Stopping was always accomplished with nose up, in a straight line and without grabbing, but with pedal pressure on the heavy side. Some rumbling was picked up by the underpan when braking hard from higher speeds. I didn't drive it hard enough to fade the brakes, but in view of the limited lining area, this should not be too difficult.

If there was any doubt before, it should be dispersed by now. The Karmann-Ghia coupe is, as the factory will reiterate, designed to beautify an economical concept, and not to walk off with Class G trophies. It is not a sports, gran turismo, or fast touring machine, but rather a semi-custom body on a Volkswagen chassis, with all the limitations that that implies.

Some initial annoyance may be caused by a lock on the driver's side only, to free the push-button latch. The doors open wide, though they will not always stay there, and provide very easy access to the two bucket-type seats. These are more or less equivalent to normal VW seats placed directly on the adjusting mechanism, which provides sufficient range for the tallest of drivers, and also raises the seat as it moves forward. The seat backs are nicely raked in the Italian manner to begin with, and further adjustment can be made with a knurled knob at one back pivot. Cushions are on the firm side, and the contoured seat and high back give excellent lateral support. The smallish wheel sits at a

nice angle well forward and clear of the thighs. It is worth saying that my elbows, arms, and hands never banged on anything, this being rare in a compact car. One contributing factor is the use of a pull-strap for the driver's door, while the passenger has a solid arm rest.

There's plenty of shoulder and hip room, but in my case (six feet even) none for the head. Just driving along casually it was all right, but if I sat well up and back for faster action, my head brushed against the top lining. Space has been stolen from two places to cut seven inches from the standard height: from beneath the seat, and above the head. It looks good, but you have to pay somewhere. The left foot rests naturally on the dimmer switch, and the intruding wheel wells effectively restrict it to this area. "Heel and toe-ing" is possible with the big roller accelerator, which sometimes seems to tire because of its height from the floor. A good pull-up handbrake is located between the seats.

Instruments are large and clearly marked, that job on the right being a very accurate electric clock and not a 12,000 rpm tachometer. The speedometer, reading to 90 instead of the standard 80, is festooned with warning lights for oil pressure, charging rate, bright headlights, and the self-cancelling directional signals. Both dials are readily visible through the wheel, and are flanked on one side by the choke and twist-to-start ignition, and by the light control and switch for the self-parking windshield wiper on the other. Very good instrument light is supplied, but cannot be used because it is reflected on the windshield directly in the line of vision — another opportunity for a suitable accessory. The glove box is wide and deep, with an awkward push-to-open catch, and it is supplemented by map pockets in the doors.

Forward visibility is not so good as that of the Porsche or VW, but still better than most cars. To the rear, the slim pillars allow an unobstructed sweep, but for the tall driver the top of the mirror view is cut off. Mention must also be made of the very clever rear seat arrangement. This bench seat is more than adequate for children, and does not even cramp an adult for short distances. It is much better than the similar Porsche in this respect. Most useful, when the seat back is folded down, a truly cavernous, well-trimmed luggage compartment is formed. This is one of the most impressive and attractive features of the Karmann-Ghia design. The back is now held in either position by a rubber strap, replacing the earlier spring counterbalance.

The coupe also offers some heating refinements, which actually make use of the two small grilles in the front. The main floor heater control supplies warm air to the floor vents and defrosters, and separate under-dash knobs allow the defroster supply to be mixed with cool fresh air from outside. You can go from fresh air only to full heat only. This neat system is fought to some extent by a noisy leakage of air around the tops of the frameless door windows. Apart from that, the coupe is pleasingly quiet at its comfortable cruising speed of 60 or 65.

Overall, the Karmann-Ghia VW coupe is potentially an economical touring and town car for a man and woman of middle height and refined taste. It is not now, and was never intended to be a sports car, but who is to say what might happen if a Porsche engine were to appear in that broad tail? That would make a difference, but the brakes would also have to be enlarged. As it now stands, the car's capabilities are well balanced, and any changes risk upsetting that balance. Most important, it is much fun to drive, and I must thank Volkswagen of Brooklyn again for making available a most desirable and thus elusive motor car. #

How Moss Chose Maserati

(Continued from page 19)

father to Modena, the center of Italy's racing industry, where he signed for Stirling with Adolfo Orsi, the Maserati racing manager.

In December, after Stirling had flown to New York, en route to the Nassau races in the Bahamas, Alfred Moss made the following announcement to the press: "I have to announce that after very careful consideration and in the light of the advice given to my son, Stirling Moss, by leading personalities in the field of motor sport, he has decided to join the firm



The Connaught is wheeled out.

of Maserati as number 1 driver for the year 1956.

"It is felt, while the new British formula 1 cars are very good, they require further tests and modifications and will not be ready to compete on even terms with the Continental challenge until well into the season. Therefore, as a professional driver, he feels that he must continue to drive for a foreign firm until the necessary developments are completed and an adequate number of cars are built to ensure a full season's racing.

"Stirling would very much have liked to drive solely for Britain but as he has decided that he cannot do so this year, he has insisted that he should be free to drive British cars in six of the major sports car events, and the Maserati Company have agreed to release him for this purpose."

Americans certainly do not feel the same as "loyal" Britons about the decision. In the first place, it was unfair for the powers at the head of B.R.M. to say that the company would suffer financially if Stirling did not head the British team. If the backer has \$600,000 available for the development of the car, it should be used now, and used *no matter who* is driving the car. Now is the time to develop Britain's Grand Prix cars, and prove their merit to a point where the cars

are worthy of drivers like Moss, who have proven their undisputed talent against tough competition.

Britain has what is probably the greatest nursery of top driving talent in the world. The development of the Grand Prix cars should be placed in the hands of this talent. This would serve to prove the cars in competition, and bring these near-greats along to the razor-edge of perfection and experience necessary in this dangerous and complex sport. At the present time Britain can only offer Moss a car which is beautiful in conception, with potential power enough to beat any present G.P. car, but which has shown no signs of being manageable or even able to go the distance in the all-out pace demanded in Grand Prix events.

In as much as none of the English circuits offer comparison with the tough European grinds, it is asking rather too much to ask Moss to judge after a few spins around Silverstone. Maseratis have the experience of the make-or-break circuits like the Nurburgring, Monza, Monaco and Spa. Then too, they will enter a full season of racing events, whereby British cars can only afford to run in the Championship events, leaving no time for engineer, driver and car to combine engineering, handling and competition experience into a "going" combination



In the Vanwall at Silverstone.

as the season progresses.

Not hindered by the pull of British patriotism which tends to warp Stirling's judgement, the decision in favor of Maserati would have been posted long ago if I were Moss. Needless to say, I am not, and can only join with the others in wishing the little man with the big heart success with Maserati in his quest for the World Championship. We hope that Britain will not let him down in developing a 1956 car for Moss to drive to a British World Championship in 1957.

#



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Tech. Report: Mercedes Benz 300SLR

(Continued from page 37)

every possible advantage by making him comfortable and providing large, simple, easy to operate controls. Basic among these considerations is the driving position. A "mock-up" is made, identical with the driving position in the car. The driver is seated in the "mock-up," where he assumes his most comfortable driving position. The seat is measured to fit the driver so that it will give full support to the back, shoulders, legs and hips. The next time the driver jumps into the car he settles down to discover that he has literally "put the car on."

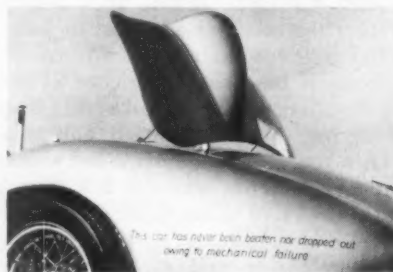
The second innovation in the SLR "office" is the special Mercedes steering wheel. This is instantly removable by pressing a button in the center of the hub and pulling the wheel off, giving the driver plenty of room to jump in and out of the car (wheel in hand) at quick pit stops. Steering characteristics can be varied to suit every driver's personal preference. Stirling isn't positive, but thinks that five stock steering ratios were available, and if none of these were suitable "Mercedes would make one to fit."

The steering is slightly oversteer, or as Moss says "just about neutral," and sufficiently "hard" to enable the driver to hold the car straight at high speeds. The instruments are large, well hooded from reflections and are equipped with a rheostat for night driving. The oil, water and tachometer are placed so the driver can read them instantly, without taking his eyes from the road for more than an instant. The tachometer is red-lined at 7000 rpm but Moss exceeded this in the Mille Miglia (to 7600) with no apparent damage or strain on the engine. The only instrument Stirling would like to add to the car is an odometer on the right side, for the navigator's use on long races like the Mille Miglia.

As in the Grand Prix car, the driver straddles the drive shaft, with legs spread wide apart, giving as Moss says, "Three point suspension" to the driver. I had the rare privilege of sitting in one of the Mercedes Grand Prix cars during my recent visit to the Stuttgart plant, and can say without any reservations, that the driving position is unbelievably comfortable and inspires confidence. I wanted to turn

the engine over and "go" the instant I settled into the machine. The tunnel and seat combine to hold the legs in driving position, automatically guiding the feet onto the pedals. There is plenty of footroom, and the pedals are serrated to keep the driver's feet from slipping off. The starter is incorporated into the ignition switch, which aids in fast get-aways at Le Mans-type starts.

The clutch is smooth, but can't be slipped too much because it is of the single plate variety. The fully adjustable gearbox is fast, strong, and fool-proof. The right hand falls naturally into position on the husky floor-



New airbrake was completely successful.

mounted shift lever, which clicks into each position with a precise solid feeling. Reverse is locked out (by a gate) as is first gear (spring loaded) so that accidentally dropping into first instead of third is difficult. Shifting positions are reversed: starting at the left of the double H, down is reverse, straight up is first (62 mph), to the right and down is second (77 mph), straight up is third (104 mph), to the right and down is fourth (139 mph), and straight up is fifth (180.2 mph). Stirling missed his shift numerous times during his record breaking run in the Mille Miglia and the box stood the abuse with no breakage.



Brake is raised, lowered hydraulically.

I asked Stirling if the light metal body rumbled or creaked at speed. He couldn't say because the side-mounted exhaust pipes, roaring wind, and transmission noise drowned out any other sound. All conversation between driver and navigator must be carried out by hand signals, or printed code numbers on small cards.

The most controversial feature of the SLR is the air-brake. A refinement of the experimental brakes used on the SL's several years ago at Le Mans, the perfected version was completely manageable and successful. Designed to assist the shoe brakes when stopping at high speeds, the flaps furnish amazing deceleration when used at speeds over one hundred miles per hour. The working cylinder of the air brake is connected to the oil circuit of a pump which is flanged to the rear-mounted transmission. By manual operation of a control slide in the cockpit, the plunger is moved in either direction, thus engaging or disengaging the aerodynamic brake. Stirling is enthusiastic about the device and says "It feels as if a giant hand had reached down and grabbed the car by the rear end."

With the spare wheels, the car carries a comprehensive set of tools, jack and special plug wrenches. Practicing for the Mille Miglia, Stirling and his navigator Dennis Jenkinson had the wheel change down to one minute and thirty seven seconds: from their seats, wheel change, and back into the seats! It is possible to drive the car "fussily" in normal traffic, but with no fan it would boil if held behind a line of cars for too long.

The 300SLR blasted all competition in its first (and probably last) racing season, confounding the theory that new designs need a season of conditioning before crowding the winners' circle. The Daimler-Benz engineers have retired their magical talents into the super-secret confines of the Mercedes experimental section, while rumors crowd the motoring world about such things as airbrakes on Grand Prix turbo cars and other strange and wonderful possibilities from Stuttgart. Meanwhile, in Stirling Moss' opinion, the "old" 300SLR is the ultimate in and-out sports car competition. #

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letters

(Continued from page 7)

was conceived by an automotive genius which the automotive world acknowledges. It was not financed by a blood crazed people, it was financed by the same people that you called persecuted!

Yes, German history has some black pages, but let us look at the history pages of other countries of the world. We may have to look back just a little farther, but are they not just a little tainted too? Let's give the West Germans a little credit for trying to support themselves and not just lay on their backs and wait for the good old Yankee dollar to feed them. I am not a world financier, but I would guess roughly that for every American Dollar that goes into a Volkswagen, two dollars will stay in the good old U. S. Treasury!

As you probably have guessed, I am a Volkswagen owner, but before I became one it took a lot of thought and consideration. I even considered your angle.

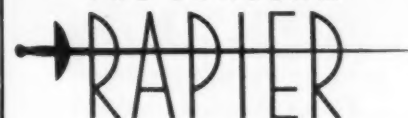
Have you ever listened to the friendly "beep" of two Volkswagen owners passing on the highway? To me that "beep" means, "Hi pardner, we helped a suppressed and misled people to become a part of a peaceful and free world."

William E. Heilmann
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book review

Rudolf Caracciola —
An Autobiography
G. T. Foulis & Co., Ltd.,
175 pp., 45 illus. — \$4.00



Black Star Photo

Mention Nuvolari to any contemporary enthusiast, and the name will be as familiar to him as Fangio, Ascari, Moss and Hawthorn among the post-war top drivers. The fact remains, however, that Nuvolari's greatest days were the 1930's, when he battled with Varzi, Chiron, Wimille, Fagioli, Stuck, Lang and Rudolf Caracciola. These names are less well-known, in spite of the fact, for example, that the last-mentioned driver has won more top-line Grand Prix races than anyone else in the history of the sport.

Belying the sound of his name, Caracciola was born in Remagen, Germany, and scored his first car victories in 1922 when he was 21 years old. The following year he began an association with Mercedes-Benz which has endured to the present, broken only by team and private ventures with Alfas in 1932 and 1933. He was the perfect choice to lead the Mercedes team in the years before the Second War, as the racing cars of that era were so powerful as to be useless in any but sensitive hands.

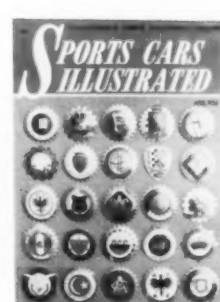
"Rudi" was noted, not for theatricals, but for handling so deft and smooth as to appear slow until the times were checked. It then became obvious that his policy was to ensure that full use was made of the great power of the Mercedes Grand Prix cars, without indulging in spectacular "dicing." His relaxed style was easy on cars and tires, and made him the undisputed master of racing in the rain.

When such a figure writes his reminiscences, we hope to get an insight into his techniques, his inclinations, and his reactions on certain occasions. Caracciola, through the very readable translation by Charles Meisl, reveals his innermost feelings during several critical periods of his career. His writing is as sensitive and direct as his hand on the wheel as he describes his accidents at Monte Carlo, Indianapolis and Berne, as well as the periods of indecision and doubt that follow. We know the surprise and joy of his first major win, and follow "Caratsch" in detail through five of his most memorable races.

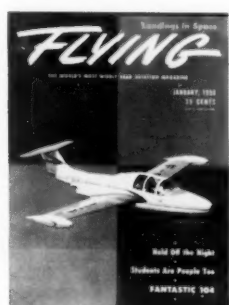
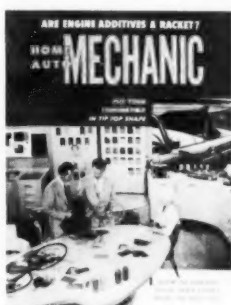
To the initial dismay of the reader, many great occasions have been glossed over or omitted, but Rudi has not attempted to frame a catalogue of his achievements. He has rather told us of himself, his beginnings, and of his relationships with the other great figures of his time. A supplementary list of his successes makes good reading in itself, and puts the events of the text in their proper perspective. U. S. readers will be particularly interested and perhaps amused by the chapters on midjet racing and Indianapolis, as observed by a Grand Prix champion.

The illustrations are numerous and very good. We feel, however, that so immortal a figure as Caracciola deserves more personal credit than remains after the omnipresent Mercedes star has been stamped on the hard cover of his fine autobiography. #
K. E. L.

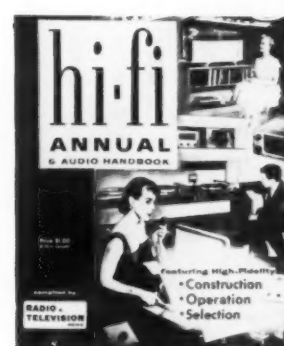
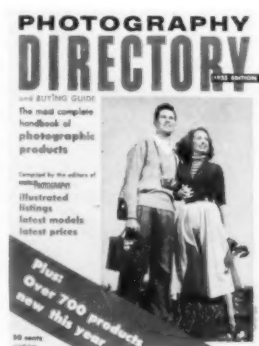
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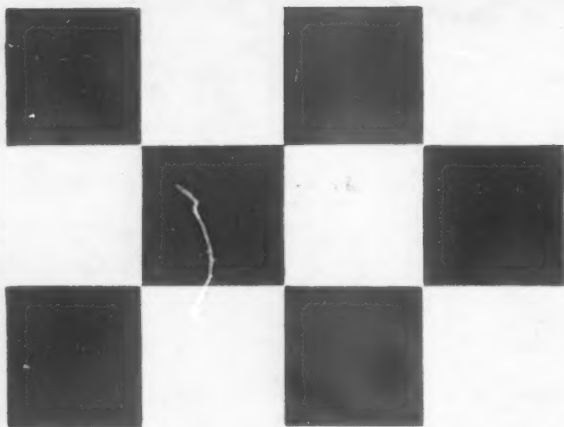


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